Commodity Birth Control

WE have come to the end of the expansion era of commodity production.

The outstanding characteristic of the expansion era was **Overproduction.**

Overproduction accomplished its usual result—it forced the price-basis on commodities to a below-cost basis.

We know to-day for a deadly certainty that production operations are below cost—nothing proves it better than the action of the stock markets.

For eight months, stocks of the commodity producing corporations have been continuously declining, and they will continue to decline until commodity producers can sell their products at a profit.

Industry must make a profit.

The way industry makes profits is by producing commodities in sufficient volume to supply the demand—never producing a surplus in excess of the demand.

Whenever the demand for commodities exceeds the supply, prices automatically advance.

Whenever the supply of commodities exceeds the demand, prices automatically decline.

Therefore, in the statement of the economic principle of "demand and supply" is found the recipe for commodity production profitmaking.

In other words, what business America is now waking up to is a realization that in order to underwrite and maintain our business prosperity, there must be a general observance and exercise of some system of commodity birth control.

We, in America, have been blessed with plenty of money, machinery and men—an unlimited supply of the means of production. We have used them profligately.

For the past seven years, the emphasis has been placed upon continued increase of commodity production, forgetting that uncontrolled production without reference to consumption results in catastrophe, collapse and loss.

Well, we have had our fling at uncontrolled production. Our price structures have collapsed and now, we are all engaged in the problem of readjusting commodity production to a profitable basis.

It will be done, but it will take time.

The first step in the problem is that of controlled production.

That production is being controlled rapidly is proved by scanning the reports of widespread unemployment.

Unemployment is of tremendous proportions and tremendous importance to the business situation. The one and only beneficient thing which the reports reveal is that commodity production is being drastically curtailed. This was the first necessary happening.

The only way business can come back and prosperous conditions may be started on a return trip, is by stopping **Overproduction.**

That is being done—it has been going on for the past eight months. It will continue until the excess production of commodities is brought down well under the demand for them.

But not until production is curtailed to the demand or consumption basis can prices be advanced.

When that happens, the next occurrence will be

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an advance in commodity prices to a profitable price-basis.

As long as we maintain an **Overproduction** program, just so long will we have a buyer's market and a below-cost operation basis.

When we curtail to a demand-basis or below, immediately the price advantage swings from the buyer to the seller.

We must have a seller's market in order to get profitable prices. Given a seller's market, profitable prices and a system of commodity birth control, business in America will again gravitate to a prosperous basis.

We have had seven years of uncontrolled commodity production and have reached the end of that trail.

Don't you think it is time to inaugurate a seven-year period of commodity birth control?

We think it is.

The Federal Commission's Report on Newsprint

IN a report to the United States Senate issued July 2 by the Federal Trade Commission, the result of an investigation of alleged price fixing by newsprint paper manufacturers is given. The investigation was called for by a Senate resolution adopted February 27 and was directed mainly at the operations of the Newsprint Institute of Canada, which, as stated in the report, was organized by the leading newsprint manufacturers of Canada at the instance of the prime ministers of Quebec and Ontario, following the announcement of a contract made in October, 1928, between the International Paper Company and the Hearst newspapers, both of the United States, for a considerable tonnage of paper at prices lower than the prevailing range. Discussing the Hearst contract in its relation to the 1930 prices, the following question put to Mr. Graustein (president of International) and his answer are deemed significant by the commission:

> "Q—Does your contract with Hearst prevent you from making this advance without Hearst's agreement?
>
> "A—We cannot increase the price to Hearst without Hearst's consent."

No violation of the antitrust law was found by the commission, but the report advises Congress that a close watch should be kept on the Canadian combination "with a view to remedial action" in the event of any attempt by the newsprint industry of Canada to create or operate through an agency in the United States. The monopolistic tendencies of one American manufacturer of newsprint is made the basis by the commission for a note of warning. It is, however, set forth in the report that no company selling newsprint paper in the eastern part of the United States has a sufficient proportion of the business to constitute a monopoly.

The Federal Trade Commission states that during this investigation it sent out letters to twenty-seven newsprint paper manufacturers in Canada requesting information similar to that of domestic manufacturers. Only five of these companies submitted any portion of the data requested so that statistics in the commission's report are not complete as to operations of Canadian newsprint manufacturers in the United States.

It is noted in the report of the commission that forty-two paper mills in the United States produce newsprint paper, while there are thirty-eight such mills in Canada. In 1929 the United States produced 1,392,276 tons; Canada, 2,728,827 tons. It is significant, the commission observes, that the consumption by publishers in the United States in 1929 was approximately 3,794,000 tons, of which 36.2 per cent was produced by domestic manufacturers, 57.8 per cent was imported from Canada, 3.5 per cent from Newfoundland and 2.5 per cent from other countries, principally from Sweden and Finland. The Great Northern Paper Company, the Crown Zellerbach Corporation and the International Paper Company manufacture 50 per cent of all the newsprint paper produced in the United States, the Great Northern Company being still the leader; the Crown Zellerbach Corporation second, and the International Paper Company and subsidiaries third, the respective percentages of production being 22, 15 and 11.7.

Regarding the conservation of raw material, the commission recommends:

"That the United States Government, through the appropriate departments, continue its experiments with the manufacture of paper from farm waste products.

"That the government-owned timber lands and waterpower sites in Alaska be made available to domestic-owned companies on liberal terms for development of the paper industry in Alaska, hav-

No other belt has the *long life* or can offer all the advantages of the DAYTON COG-BELT

Certain definite, exclusive features of Dayton Cog-Belts are responsible for the outstanding success of Dayton Cog-Belt Drives. These features cannot be duplicated by any other V-Belt.

For example, no other V-Belt is laminated and die-cut in its finished state, for these are exclusive Dayton features. All others must be moulded.

Dayton construction eliminates distortion. Daytons are—and remain—accurate—give truer alignment—have a firmer grip in the pulley grooves due to the die-cut raw edge contact-driving surface—there is no slippage.

And Dayton Cog-Belts do not stretch—in the manufacture of no other V-Belt is the fabric kept under such tremendous tension during the vulcanizing process—the pre-stretching of the fabric is thus made permanent in the finished belt, which means fewer adjustments—less maintenance and longer life.

But let us give you complete information about these and the many other outstanding features that give Dayton Cog-Belts their amazing efficiency and long life. Send for a Dayton Cog-Belt Drive catalog and a sample section of the belt.

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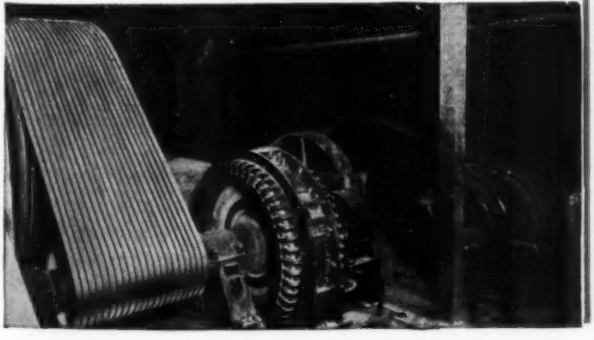
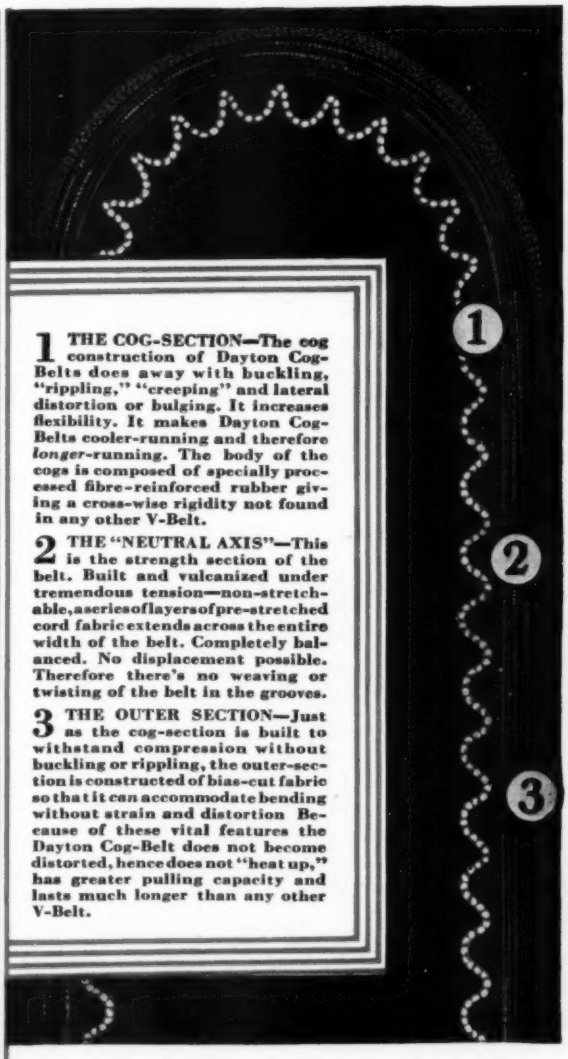
Dept. PI-7-30 Dayton, Ohio

Factory Distributors in Principal Cities and all Westinghouse Electric and Manufacturing Company Sales Offices





1 THE COG-SECTION—The cog construction of Dayton Cog-Belts does away with buckling, "rippling," "creeping" and lateral distortion or bulging. It increases flexibility. It makes Dayton Cog-Belts cooler-running and therefore *longer*-running. The body of the cogs is composed of specially processed fibre-reinforced rubber giving a cross-wise rigidity not found in any other V-Belt.

2 THE "NEUTRAL AXIS"—This is the strength section of the belt. Built and vulcanized under tremendous tension—non-stretchable, a series of layers of pre-stretched cord fabric extends across the entire width of the belt. Completely balanced. No displacement possible. Therefore there's no weaving or twisting of the belt in the grooves.

3 THE OUTER SECTION—Just as the cog-section is built to withstand compression without buckling or rippling, the outer-section is constructed of bias-cut fabric so that it *can* accommodate bending without strain and distortion Because of these vital features the Dayton Cog-Belt does not become distorted, hence does not "heat up," has greater pulling capacity and lasts much longer than any other V-Belt.

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ing in mind, of course, the conserving and perpetuating of these national resources."

In support of its proposal to develop Alaskan newsprint manufacturing possibilities, the commission points out that if Alaskan newsprint can be delivered to New Orleans through the Panama Canal at $58 a ton, it can be sold in Cincinnati and even in Chicago at $64.60 a ton. The current delivered price in these two cities is $62. The increase proposed by the governments of the provinces of Quebec and Ontario would establish a price of $67 a ton, giving Alaskan paper an advantage.

While no estimates of ocean rates from Alaska to the Atlantic Coast ports have been received by the commission, "it would seem that Alaskan newsprint should compete with eastern United States and Canadian mills well up the Atlantic Coast."

The commission's report on newsprint paper has not been printed and no estimate has been made as to when printed copies will be available.

Paper and the New Tariff Act

THE long labors of Congress in writing a new tariff act have ended and the tariff act of 1930 is now the law of the land. Paper manufacturers are variously affected by the new law. The Tariff Committee of the American Paper and Pulp Association succeeded in convincing the committees of Congress of the necessity of some changes in rates toward a higher level of duty in order to give the American manufacturer of paper an equal chance in the American market with the foreign producer. In this way the tariff rates governing the entry of foreign paper and paper products show 39 increases as compared with seven changes in the direction of lower rates of duty, the chief reductions in duty affecting plain photographic papers, that is unsensitized papers.

The general committee of the American Paper and Pulp Association was aided in its work by the Import Committee of the American Paper Industry, and all concerned are entitled to the utmost praise for their work in suggesting new rates and new working of paragraphs of the law so as to provide increased protection for manufacturers of special papers against a species of foreign competition made possible by different economic conditions in foreign countries where wages paid to workmen are lower and living conditions inferior to those prevailing in the United States.

While paper manufacturers have been benefitted by increases in tariff rates they have been otherwise affected by increased duties on imported fourdrinier wires and casein. For these increases the Tariff Committee of the American Paper and Pulp Association disavows responsibility as only paper and paper products were handled by it. Emphasis is placed upon this by General Manager Neal in his final report concerning the new tariff, in which he says that the association had nothing to do with any other materials save paper and paper products.

The new flexible provisions of the tariff are calculated to keep the American Paper and Pulp Association committee continuously at work as it will be their duty to take up with the Tariff Commission, having charge of the flexible provisions under the direction of the President, any changes of rates that may be deemed necessary under the operation of the law. The purpose of the flexible provision is to "equalize the differences in the costs of production of the domestic article and the like or similar foreign article," the commission being understood to ascertain the domestic cost of production and the foreign cost of production as in the old law and then make recommendations to the President for changes in the rates.

There has been a great deal of criticism in the newspapers concerning the grievances of foreign interests, and among other things the decline in our exports this year has been laid to tariff reprisals. In a reference to this, Mr. Neal quotes Franklin Johnston, publisher of the **American Exporter,** who, in a statement regarding export trade, says exports of finished manufactures, other than automotive machinery are eight per cent ahead of 1928 and only five per cent behind the record-breaking figures of 1929. Our export trade with Mexico and South American countries has increased and it is denied that our exports are being discriminated against by foreign buyers.

The flexible provisions of the new tariff act should enable us to remedy any international grievances, while giving equal protection to domestic industries which suffered from foreign competition. Every disinterested student of the tariff situation is convinced that the new tariff rates will benefit the country, and that after a return to normal conditions, trade with the rest of the world will grow and expand beyond anything expected.

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Improvements in the Cooking of Wood Pulp

Observations on Direct and Indirect Heating and Forced Circulation in Foreign Pulp Mills

By ARTHUR STEPHAN KLEIN, Ph.D.,
Hermsdorf-Kynast, Germany

IN a recent communication from Dr. Arthur St. Klein, of Hermsdorf-Kynast, Germany, he discusses direct and indirect cooking and forced circulation in chemical pulp cooking. In the cooking of sulphate pulp in Europe two circulating systems are used, and there are three systems of forced circulation employed in sulphite cooking.

Morterud Forced Circulation

The Morterud system of sulphate cooking is shown in Fig. 1, where (1) is the digester; (2) the calorisator for indirect heating of the circulating liquor by pump (3), the motor for driving the pump being shown at (4). The digesting liquor forced into the top of the digester is distributed by a spray (5). To improve the circulation there is a perforated hollow ring (6), and a strainer in the shape of a perforated conical sieve (7) which keeps back chips, etc., while the flow of liquor is regulated by (8), the shut-off valve for the lower outlet being shown at (9).

Schauffelberger System

The Schauffelberger system of indirect cooking is also adapted for the cooking of kraft pulp. This system is made and sold by the Nordiska Armaturenfabrik, Stockholm. The arrangement of the digester is shown in Fig. 2. A perforated ring inside the digester for keeping back chips, knots, etc., is shown at (1). This is connected through (2) and (3) with a pump (4). From the pump through pipe line (5) the cooking liquor passes to the heater or calorisator where it is heated by indirect steam and forced through pipe lines (8) and (9) into the lower as well as the upper part of the digester. Means are supplied for disconnecting the calorisator to effect direct cooking through the introduction of direct steam at (10). Condensate from the calorisator is discharged at (11), and to remove dirt and foreign material from pipe line (3) there is a T-shaped flange (12) which can be opened when the valve at (2) is closed and the pump is stopped.

The system described in the foregoing paragraphs are in use in Scandinavian and other European sulphate mills. The pumps and piping are constructed of wrought iron.

Doctor Klein says that 30 years ago he had seen in operation cylindrical sulphate digesters heated directly by steam and equipped with pumps for forced circulation of the cooking liquor. The principle of forced circulation in connection with pumps or injectors cannot therefore be patented, only details of new construction being covered by patents.

Improvements in Sulphite Cooking

Pumps and piping of stainless steel (ferro-chrome alloy) are made use of by Morterud in Sulphite pulp cooking. The scheme on which his system is based is illustrated by Fig. 3, though the pipes shown in the drawing are contained in the interior of the digester and not on the outside as shown in the figure.

Direct Heating and Forced Circulation

Fig. 4 shows some details of the Morterud system for the direct heating of sulphite digesters in com-

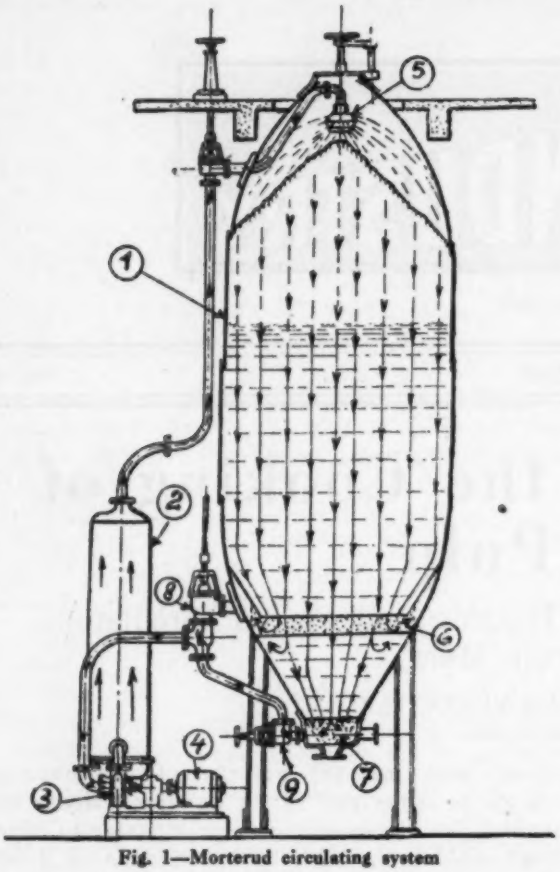

Fig. 1—Morterud circulating system

bination with forced circulation. It should be stated that Morterud favors indirect heating for sulphite cooking as illustrated in Fig. 5.

Doctor Klein says he knows of only one sulphite mill in Japan equipped with a Morterud indirect heating installation, whereas several Scandinavian sulphite mills use the Morterud forced circulation, direct heating system as illustrated in Fig. 4.

Hugo Wallin, one of the pioneers in the sulphite alcohol industry, uses the system shown in Fig. 6. It consists of three digesters (1), (2), (3), and a closed tank (4). Each digester is provided with perforated circular plates (5) and (6) to keep back pieces of chips. The injector for circulating the cooking liquor is (9), and (13) is an injector for forcing relief gas into the digester. A steam valve for equalizing the steam boiler pressure is at (15), and (16) is a steam valve to shut off the steam pipe line in the digester house. The regulating valve is shown at (25), this being connected with line (23a); regulating valve (26) to control pressure in closed vessel (4) is seen to be connected with line (19). The pressure is lower by 3.5 lb. per square inch lower than that set for regulating valve (25). If the pressure in line (23a) is lower than in (23b), or (4), valve (24) opens automatically. Additional means for relieving pressure is given at (17), (18) and (24).

Wallin's Cooking Process

The modus operandi observed by Wallin is as follows: After the digester is filled with chips and steam, cooking liquor is introduced through (28), acid enters at the same time from (4) through (30) and (28). Cooking liquor is fed into the digester in sufficient quantity to rise to the valve on top. The valves are then closed and cooking is started by opening valves (17), (22), (7), (11), (14) and (15). Gas and steam enter through (15), (14) and (13) and circulation is started, which can be im-

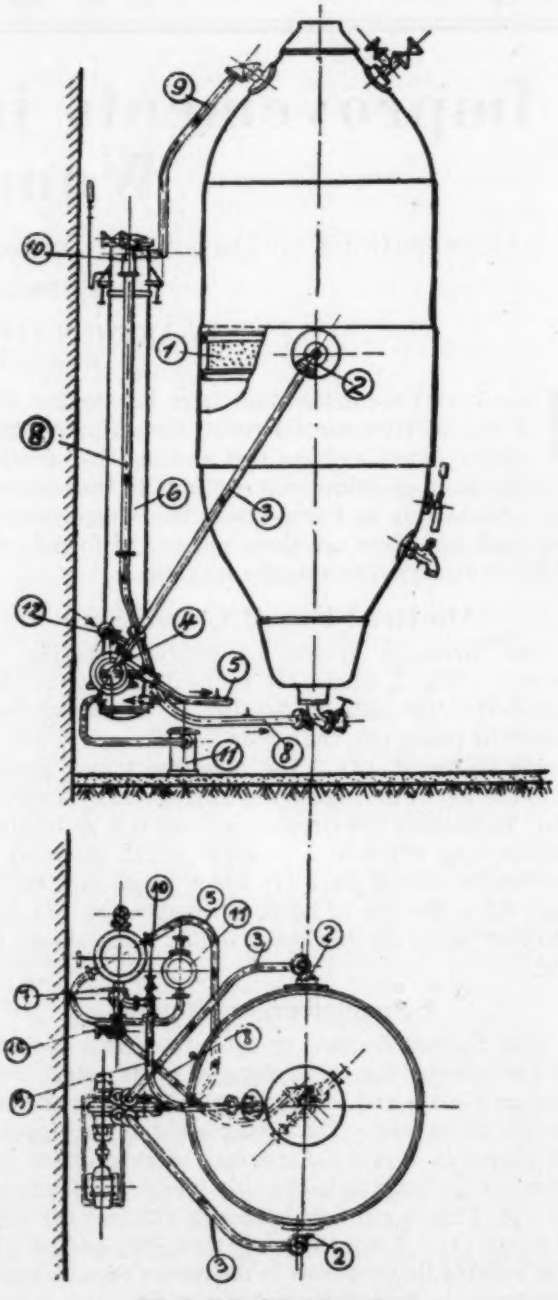

Fig. 2—Schauffelberger system

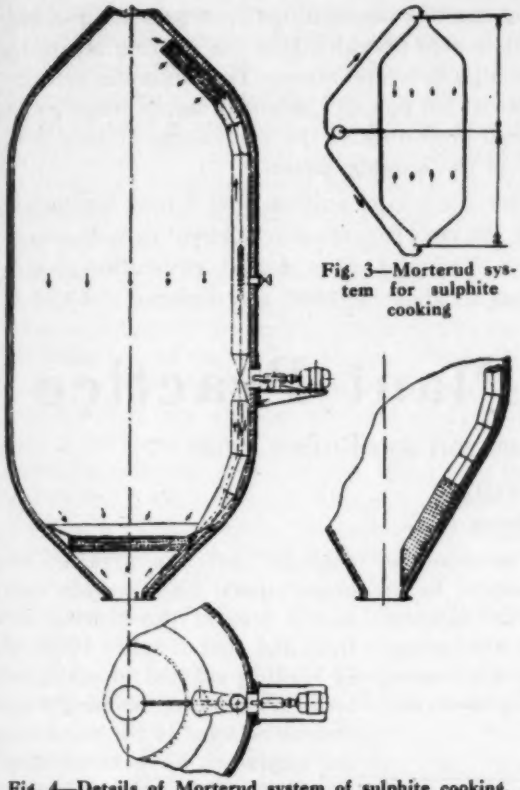

Fig. 3—Morterud system for sulphite cooking

Fig. 4—Details of Morterud system of sulphite cooking, direct heating and forced circulation

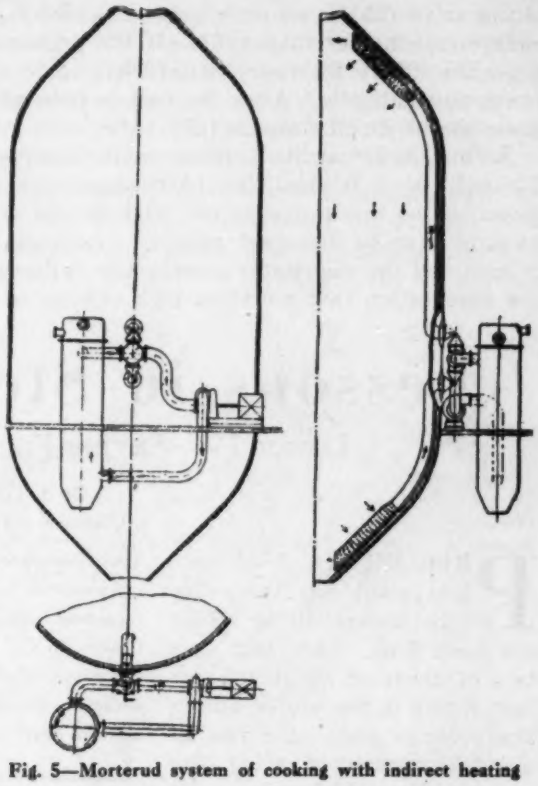

Fig. 5—Morterud system of cooking with indirect heating

proved by opening valve (10), a valve which is also used for regulating temperature. The liquor is circulated by means of injector (9), any surplus of liquor and gas being led by (17) and (19) to closed tank (4).

If the pressure becomes too great in gas line (19), regulating valve (26) opens and gas is blown from tank (4) to the acid storage reservoir. After cooking for a period of six to seven hours at 110 to 120 deg. Cent., some of the acid is blown into the next digester to be used there, after which (17) is closed and (18) is opened, which causes forced circulation of gas in the digester. Relief gas is passing (22) and (23a) and (21) to the next filled digester. If the gas cannot be absorbed there it passes through regulating valve (25) to the acid storage tank. Regu-

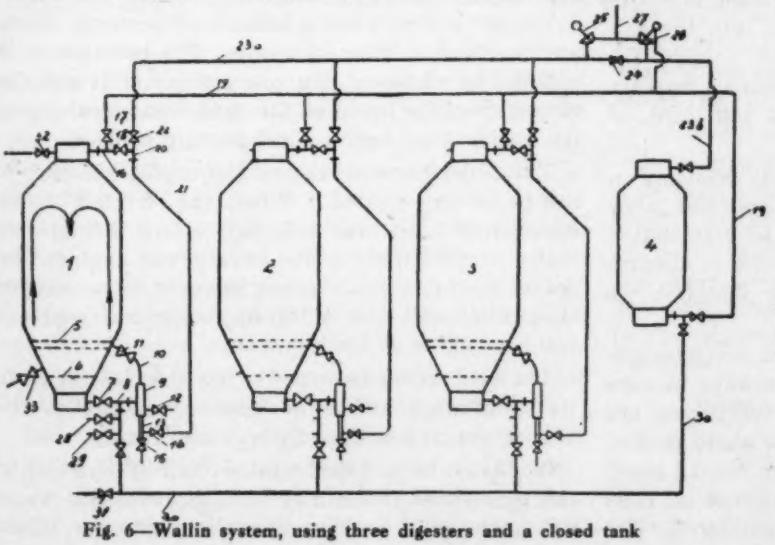

Fig. 6—Wallin system, using three digesters and a closed tank

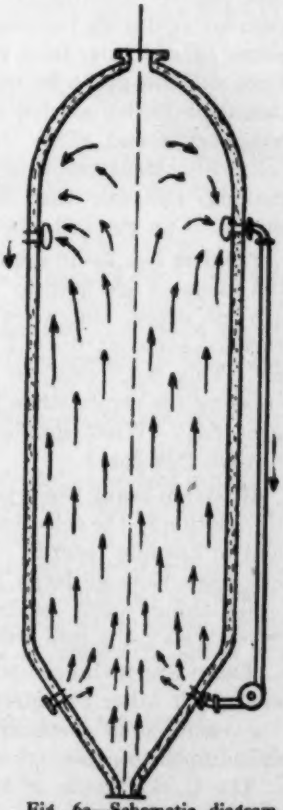

Fig. 6a—Schematic diagram of Wallin system of forced circulation

lating valve (25) is set for a pressure of 3.5 lb. per square inch higher than (26). If the pressure in pipe line (23a) is lower than (23b), valve (24) opens automatically. After the cook is finished the gases are blown off through (22).

An installation at the Karskaer mills, invented by Brobeck, is of interest, but particulars cannot be given as the inventor does not wish details of his apparatus to be discussed publicly. Indirect heat is used and the calorisator construction is based on the observation that a certain high velocity of circulating speed is necessary to prevent scaling of the pipe; it is also provided that the heating steam be not too high in temperature. The minimum velocity is stated at 0.5 mm. per second, a figure which must be varied according to the percentage of lime contained in the cooking liquor.

Doctor Klein is of opinion that forced circulation will be the next general improvement in pulp manufacture. The cost of a forced circulation device amounts to about $20,000 per digester.

Lessons in Steam Plant Practice

Lesson IV—Saving Fuel in and Around the Boiler Plant

By J. CHARLES RYDER
Champion Fibre Company, Canton, N. C.

These lessons in Steam Plant Practice are being published in THE PAPER INDUSTRY by arrangement with the Champion Fibre Company, Canton, N. C. They are a part of the general educational course conducted by this company under the direction of J. Norman Spawn, educational director.

PROBLEM No. 1—A certain plant has three fire tube boilers all of which are hand fired. The plant uses two of them at about 105 per cent rating in the winter, and in the summer they each run at about 51 per cent of rating. The engineer figured that he could save coal by blocking off part of the grate area of each boiler during the summer months. At some expense he did this, then removed the brick used to block off the grate in the fall. He thereby maintained his boiler efficiency all the year around, and was very proud of it. One day a fellow engineer called his attention to the big mistake which he was making, and one that is common in most boiler plants. Can you tell what it is?

Problem No. 2—In a black ash boiler room, where the furnaces are fired by hand, usually there are no ash pit doors, and when coal is shoveled into the furnace some of it falls off and goes into the ash pit. This is thrown out with the ash, thereby increasing the combustible in the ash, besides wasting good coal. What simple remedy can you think of to save this coal?

In steam plant work you must study economy in its relation to the selection and use of material, labor and in keeping records. But do not let combustion efficiency loom so large in your eyes as to obscure other things quite as important, for instance, we must "carry the mill load."

There are instances when we must sacrifice efficiency for other considerations; but always be sure the sacrifice is justifiable, so that when you are called upon to explain, you will have a sound reason.

The U. S. Bureau of Mines Bulletin No. 18 says: "The principles governing the combustion of fuels in a boiler furnace have been little understood. The dogmas that the area of the grate should be a certain ratio to the area of the heating surface, and that it takes 10 sq. ft. of heating surface to make one boiler horsepower seemingly has become so fixed in the mind that the engineers have never questioned it. It is only within the last decade that a few engineers have broken away from the old rule of thumb methods and have begun to investigate the boiler and furnace separately. Their studies seem to mark the beginning of the advance in steam generating apparatus."

The boiler is a metallic vessel which contains water and steam and absorbs heat. Consequently, it should be studied as a heat absorber.

The furnace is that part of the steam generating apparatus in which the potential energy of the coal is changed into heat, consequently it should be studied as a heat generator.

The method of rating a boiler horsepower is wrong and may lead to harmful results. **The horsepower of a boiler is whatever you can get out of it and the rating should be based on the most economical capacity**, rather than upon a fixed heating surface.

The boiler horsepower and the engine horsepower are in no way related. When the original boiler horsepower unit was selected, a one horsepower boiler would supply a one horsepower engine. Increase in economy of engines, however, have changed that ratio until now a 100 hp. boiler will supply a 250 hp. engine at least.

The term boiler horsepower has thus lost much of its significance and it is common practice to run boilers now at 2 to 3, or 500 per cent rating.

You must know where wastes occur at each step of the process of steam making, otherwise you would not know what or how to apply remedies. If the

evaporation is low, one person may say it's a poor boiler, or dirty boiler, which may mean internally or externally or both. It may be a poor job done in the furnace or maybe the boiler is set low, but the **greatest alibi is poor coal.** We will have something to say about this in a later lesson. At any rate, there are wastes of coal before it reaches the bunker, between the bunker and furnace, between the furnace and the boiler, at the boiler, and between the boiler and the stock. The latter is either in the form of incomplete combustion, (CO gas) or excess air, not necessarily from too much forced draft, but from air leaks around the setting, as shown at x in Fig. 11.

Let us suppose that in weathering and handling coal between the storage pile and the bunker, we lose 2 per cent of the heat value of the coal. We will start out with a ton of coal. Assuming the coal has 13,000 B.t.u. per pound, this will give us 26,000,000 B.t.u. to start with. Deducting this 2 per cent, we will arrive at the furnace with 25,480,000 B.t.u. A pound of this coal is capable of evaporating 13.4 pounds of water from and at 212 deg., $13{,}000 \div 970.4 = 13.4$. If we could evaporate that amount, our boiler as a heat absorber, and our furnace as a heat generator would be 100 per cent. Now if our evaporation would be 6.7 pounds of water per pound of coal, it is clear that our "combined efficiency" would be just 50 per cent, because 6.7 pounds is that percentage of 13.4 pounds of water.

In order to get the combined efficiency, which means the boiler and furnace efficiency, we must know the heat value of the coal, the B.t.u's. This must be obtained by the use of a coal calorimeter. The coal may look good and be low in heat value or to the contrary. The amount of ash and moisture in a coal have their effects upon the way it burns. In operation, any quantity of moisture that is either in or upon the coal means a definite waste of fuel which can be figured. All coals vary in the amount of "interior" or natural moisture of the particular mine from which it came and gathers exterior moisture from transit and storage, especially during inclement weather. Heat used to evaporate moisture contained in the coal, and surface moisture on the outside of the coal, plus heat that must be employed to raise the temperature of the steam resulting from the evaporation of the moisture, to that of the stock gases, cannot be used to evaporate water in the boiler.

Mr. Joseph Harrington says, "The heat value of fuel available for useful work is almost in inverse proportion to the total water content. With a moisture content of 30 per cent, slightly more than 10,000 heat units out of a total of 15,000 are available."

Moistures in excess of 30 per cent are encountered in some high volatile coals, the lignite for instance.

You will see now that you cannot arrive at a correct evaporation of pounds of water per pound of coal, unless we correct the coal for moisture, and in some cases the steam must be corrected for moisture, more of this later. Even with a correct analysis of the coal, and ascertaining exactly the amount of water evaporated, we are still without the information that will be necessary to improve the efficiency.

In the example above where we started out with 26,000,000 B.t.u. and arrived at the furnace with 25,480,000 B.t.u., realizing a combined efficiency of 50 per cent, we find we have lost from the furnace

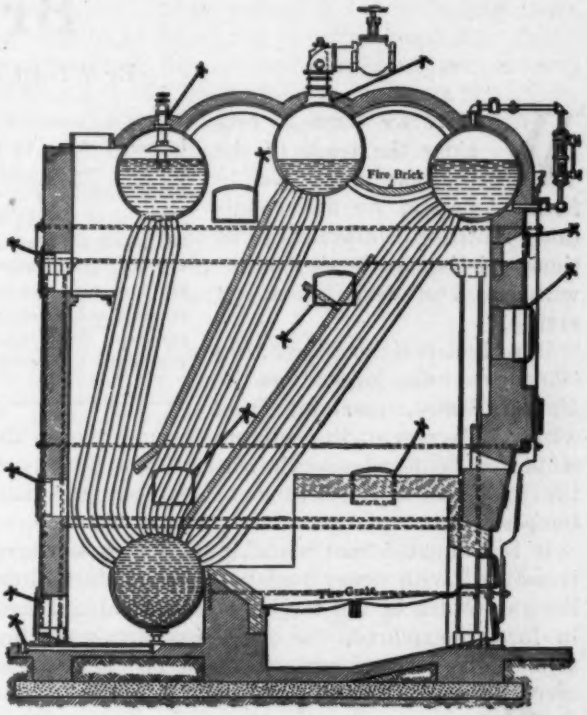

Figure 11

to the stock 12,470,000 B.t.u. and we used the same amount to do useful work. We cannot expect to get 100 per cent efficiency, because **the gases cannot leave the boiler below the temperature of the steam therein,** we can expect from 75 to 85 per cent in which case (85 per cent) there was a needless waste of 8,918,000 B.t.u.

Now in order to stop all this needless waste of heat energy, we must analyze our flue gases with an orsat, and take draft measurements at the various parts of the boiler, as well as get the temperature of the gases leaving the boiler. With this information, we can put our finger on the trouble, so far as excess air, incomplete combustion or defective baffles are concerned.

Steam Plant Practice Questions

(1) What would you do in the case of problem No. 1?

(2) How would you prevent the coal going into the ash pit in problem No. 2?

(3) How many square feet of heating surface of a boiler is accepted as one boiler horsepower?

(4) (a) How would you consider a boiler in regard to heat?

(b) The furnace?

(5) What would you consider the most economical capacity of a boiler?

(6) Are a boiler horsepower and an engine horsepower the same?

(7) State where and what fuel losses you would look for, from the time the fuel leaves the bunker as coal, until it arrives at the top of the stack as gas.

(8) What do you understand is "combined efficiency?"

(9) What two kinds of moisture does coal have?

(10) What governs the temperature of the gases leaving the boiler?

Brazil

By WILBUR T. GRACEY

This is the second of a series of articles specially prepared for us by Mr. Gracey, who was for over twenty years an American Consul in Latin America and other parts of the world. Mr. Gracey speaks Spanish and several other languages, and during his term as consul was a prolific contributor to "Commerce Reports," has done much constructive work for the Government and American manufacturers and been successful in placing many firms in contact with trade opportunities abroad.

WHEN we come to consider the trade of the largest republic in South America, we find conditions entirely different from those existing in the Argentine, with which we dealt in our last article.

Here is a vast territory, 250,000 square miles larger than the United States, reaching from within 5 degrees of the equator, through tropic humidity, to 30 degrees south, where the high lands of the Province of Rio Grande do Sul are cool and temperate.

It is estimated that about half of this territory is covered with dense forests, most of them little known. Much of the territory is uninhabited, and in fact, unexplored, the populous parts occuring around the large commercial centers—Rio de Janiero, Bahia, Pernambuco, Sao Paulo and Rio Grande do Sul.

A rough classification shows about 35 per cent of the people to be white; 35 per cent white-negro mixtures, 15 per cent straight negro and the balance Indians and miscellaneous.

The chief resources of the country are coffee, which is of the first importance, rubber which is second, and various minerals, including important diamond fields.

A comparison of the value of the import trade may be gained by the figures of per-capita percentages. While the figure for Argentina is about $47 per person, in Brazil this is only about $13.50.

Over one and a half billion dollars of foreign capital is invested in Brazil, and foreign influence is strongly marked. Portuguese is the popular and official language—remember this when preparing your printed matter and correspondence—and a large proportion of the population is of Portuguese descent.

Pedro Alvares Cabral, a Portuguese navigator, found Brazil in 1500, only eight years after Columbus discovered America. He called it the "Land of the Holy Cross." It later acquired the name Brazil, from the red dyewood found in its forests, at that time brought to Europe from the East and Commercially known as "Brazil wood."

For nearly fifty years no attempt at settlement was made and then Thome de Souza was made Governor General. The The Portuguese Crown divided the country and made grants of land to certain nobles who settled and colonized and were given a number of Indian slaves in addition to land.

As it was not desired that all the Indians should become slaves, vast numbers of negro laborers were imported from Africa, and many of them still live there, principally in the Northern States where there is a strong mixture of white and negro blood.

Colonies of foreigners are strong in Brazil, over 600,000 Italians, about 400,000 Spaniards and the same number of Germans, the latter mostly in the Southern States. These Germans are strongly intrenched in every trade, and in the South dominate it, especially as regards the paper trade.

During the war years, the United States acquired a lead in the paper business, but the comparative exports have dropped off and even as far back as 1921 figures showed that Finland, Germany, Norway and Sweden preceded us.

They supplied newsprint principally, but Germany shipped large quantities of writing paper as well.

Up to date statistics of the import trade are difficult to obtain—Brazil being particularly dilatory in issuing this information—but according to the latest available figures approximately 45,000 tons of paper products are manufactured in the country, and in 1927, 47,721 tons were imported valued at $7,448,859. This increased in 1928 to 58,296 tons valued at $9,119,420—a growth in the single year of $1,670,561 or over 22 per cent.

This cannot, however, be considered as a normal growth as the figures of 1927 were less than usual. Imports in 1913, before the war, had already reached

53,174 tons, which in 1920 had fallen to 51,000 tons. 1921 showed only 30,788 tons, and 1922, 47,098.

Over half the paper imports have been consistently newsprint and book papers, with board and writing paper following.

The detailed figures for 1927 are the latest available, and are as follows:

Newsprint	70,771,860	pounds
Other printing paper	10,486,980	"
Writing paper	6,824,475	"
Cigarette paper	1,629,495	"
Wall paper	52,920	"
Cardboard and millboard	4,921,560	"

Paper unenumerated making up the balance.

The growth of the American exports has been steady, but not large, as is shown by the following figures:

Exports for	1926	1927	1928
	$295,392	$350,424	$377,482

I do not give the details herein, but those interested therein can secure them on application to the Bureau of Foreign & Domestic Commerce.

Papers in Demand

The demand is increasing, although the character of the population limits it. Within the coastal belt, less than half the population is literate, while the interior is largely inhabited by Indians. The growing demand is a result of a normal and regular increase in population, expansion of industry in the large cities of the seaboard, and the presence of large numbers of foreign residents.

The principal demand is for newsprint, "assetinado," lithographic paper and sulphate bond.

Brazilian paper merchants do not try to stock every line, but endeavor to secure grades which can serve for various purposes. The term "assetinado" represents a hard sized machine-finished, or super calendered paper which can be used for either printing or writing.

While the largest call is for newsprint, probably not more than half of this is used for the purpose designated, large quantities being sold as wrapping paper. We have little opportunity to supply this product.

American papers generally sold, in order of quantities are: machine-finished book paper, cover, lithographic and ledger paper and a good deal of featherweight, antique and eggshell and machine finished printing paper, pressboard, vegetable parchment, blotting, safety, crepe and photographic.

Boxboard and bristol is shipped from the United States, but the trade is growing smaller annually owing to the fact that local factories are producing these products.

The manufacture of boxboard in Brazil now takes care of approximately 90 per cent of the demand. It is cheap gray or brown, made from scraps and old newspapers, and the 10 per cent imported is supplied almost entirely by Netherlands and Scandinavia. The demand is constantly growing, but prohibitive tariff duties make it impossible for us to meet the local competition.

Bristols, blanks and sample cards are not produced and therefore come from abroad, principally from Germany which manufactures in metric sizes (50x75 centimeters) and can sell at better prices than we can do.

American lithographic paper is acknowledged to be the best on the market, and there is a demand for it in spite of higher prices. It has more body, does not stretch as much and is better dried than European products. Size demanded is 66 x 96 centimeters, weighing from 17 to 40 kilos per ream of 500 sheets (basis 25 x 38, 36 pounds, 500 sheets). There is also a call for sheets 76 x 112 centimeters in weights from basis 25 to 38, 26½ pounds, 500 sheets and upwards.

There is not much call for catalogue papers. Numerous papers are used for this purpose, but very seldom is the thin opaque stock with which we are familiar, sold.

Coated book papers (single and double coated) are used for the weekly magazines, which are made up with many photographic illustrations. Papers with cheap groundwood base are given preference over the high-grade sulphite base products. A bright white color is insisted upon and high glossy finish. Somewhat similar paper, coated on one side, is sold in considerable quantities for cigar bands and box labels. There is no call for friction or flint glazed papers.

Cover paper demand is entirely for the cheaper grades. The import duties are excessive—about 10¢ per pound varying with the current exchange—though heavy grades are sometimes admitted as cardboard at approximately half the above quoted duty.

Tissue papers come principally from Germany, though one firm handling a high quality American product sells to the jewelry trade. France supplies the lightweight ribbed cigarette paper. Toilet papers are shipped from the United States and have to meet the competition of cheap-low-grade locally made stuff produced from newspaper scrap.

American crepe paper finds a good market in spite of the fact that it is more expensive than the European product. The quality is considered far superior.

The wrapping paper demand is covered by products locally manufactured,—mostly newsprint—and old discarded newspapers are also used for this purpose. Sanitary wrapping such as is prevalent in the United States is not usual, and even bread and other food products are marketed unwrapped.

In the writing paper line we have been unable to compete satisfactorily with Europe, our quality is too high for this market.

It is an interesting sidelight on the peculiarities of import tariffs, that watermarked paper is assessed as writing paper, while without such watermark it can be entered as printing paper at a lower tariff rate. For this reason, importers often specify that imported writing papers shall bear no watermark, so that they can take advantage of the peculiar tariff situation.

On the other hand, tinted papers when watermarked are admitted at a lower rate than unwatermarked, the latter coming under the heading of "colored printing papers" at a higher rate of duty. Better grades of writing paper should, however, always bear the watermark, as with the Brazilians the quality of the product is overlooked in favor of the mark. Light weight papers are preferred because of the duties.

American ledger paper commands a good sale, especially heavy weight sulphate bond. Another large American import is photographic paper.

Centers of Trade

The trade of Brazil is largely concentrated in the cities of Rio de Janiero and Sao Paulo. Papers are manufactured at these points and generally distributed from them to other cities. All of the cities, from Para in the tropics to Rio Grande do Sul, import small quantities of paper direct, but Rio dominates the market in the same way that Buenos Aires does in the Argentine.

Much of the information given in my article regarding the Argentine, might equally well be applied to Brazil, especially as it relates to the methods of purchase, manufacture, sources for securing information, etc. This also applies to my comments on the opening of your own offices, sending of circulars, quotations on metric sizes and credits.

There are certain differences, however, which should be noted.

In Brazil, a number of concerns handle paper in wholesale quantities, but as a general rule, do not confine themselves exclusively to the one product. Besides these general importers, the printers, lithographers and stationers import direct and sell at retail. A considerable number of paper orders reach American manufacturers through commission agents, some of whom also buy for their own account and sell to smaller printers and stationers.

Competition is intensive, and as firms with diversified interests handle the trade the market is often overstocked. The channels for distribution have not been as carefully organized as in the Argentine.

Probably the small proportion of the trade which we secure is due to the fact that most of the general importing firms and agents are European and naturally swing the trade to their own countries. It is probable that if our trade was properly organized we would be able to hold our own in certain lines at least. With good local agents on the spot—eliminating the general importer's profit—it is probable that American manufacturers might better meet European prices.

It is almost a necessity to have your own representative in Brazil, and he will probably have to carry considerable stock in order to meet quick demands.

Brazilian Paper Manufacture

According to the latest available data in my hands there are about twenty paper and board mills operating in Brazil, confining their production almost entirely to boards and wrapping paper. They make small quantities of fine papers, but only one handles rags, as the cost of this stock is too high for general use. Small quantities of writing paper are made, and there are 3 firms making wall paper. The demand for this product is not general owing to climatic conditions and insect pests.

Two factories are producing sandpaper, 12 paper boxes and 5 paper bags.

Practically all the paper machines now in use are of German origin, only part of them are modern, and some of the factories are small and use very primitive equipment.

Wood is almost a drug on the market in Brazil and there are vast areas of trees suitable to paper manufacture. The tree found most satisfactory is the Parana pine, and an almost continuous forest of these trees is found in the States of Santa Catharina and Parana. The wooded area extends from the headwaters of the Rio Parana for a thousand miles southward with a width of two hundred miles. It is estimated that there is 50,000,000,000 cubic feet that could be used as lumber for pulp.

This wood is being used in the manufacture of low grade paper and board. The quality of the pulp is, however, far inferior to that of Europe and North America.

It is probable that future mill construction will take place within the area which grows this Parana pine, as it can undoubtedly be used for better grades of groundwood and chemical pulp, and has good fiber and a comparative absence of resin.

Brazil, up to the present time, has not been able to produce paper of sufficient strength to meet the desires of the market without mixing the local pulp with some imported pulp.

Our share of the Brazilian trade is not what it ought to be, and if we can successfully compete in the much more competitive market of Argentina, there appears to be no reason why similar success cannot be attained in Brazil.

Price is the all important factor in this trade and owing to the superiority of American products there appears to be some doubt at present whether we can meet the German, British and Scandinavian competition, except in the higher priced lines.

The extension of credits in Brazil is also of para-

mount importance and great care must be taken to investigate the responsibility of concerns placing orders, especially the smaller newspapers and printers. Here it is invaluable to have your own man on the ground, so that inquiries can be instituted in the trade to discover the financial responsibility of purchasers.

Quotations should be made, when possible, c.i.f. Brazilian port, in order that the probable purchaser can compare prices with European products. A margin must be allowed for possible variations in exchange, and quotation should be given in Brazilian currency.

Credit terms run to 90 days from date, or 90 days sight, English houses sometimes granting 120 days and German firms even longer.

Import duties are based on the gross weight, including wrappings, but not including the wooden packing cases.

In shipping to the hot and humid sections of the country, soldered tin-lined cases are advisable, or asphalt-impregnated case linings.

Speaking generally, the Brazilian trade does not offer as good opportunities as does that of the Argentine and some other Latin American countries.

In my next article I will give you particulars of the peculiarities of trade of another of our South American neighbors.

Permanence and Papermaking

No. 6

By DR. TH. BENTZEN,
Chief Chemist, Whiting Plover Paper Co., Stevens Point, Wis.

SULPHITE pulp is a cellulose, and its chemical formula is therefore the same as that of the cotton cellulose, $C_6 H_{10} O_5$. But this does not mean that their physical qualities are the same, as little as the physical qualities of a diamond are equal to those of a piece of coal, although both of them have one and the same chemical formula, C.

Without going into details about all that is known, and the much more that is not yet known about cellulose and its chemical and physical qualities, I shall only mention what we, in a general way, need to know about sulphite pulp to be able to understand its qualities as a paper material.

Cellulose consists, plainly explained, of three main groups (setting aside all transitional phases):

1. The true cellulose of alpha cellulose
2. The oxycellulose or beta cellulose
3. The glucose or gamma cellulose

Each of these three groups is possessing certain special and very different qualities which make them react differently to alkali and acid, and this enables us to separate the three groups and thereby to estimate the quality of the sulphite pulp in question, according to its contents of alpha cellulose.

The fact is that the alpha cellulose represents the real papermaking material of the pulp, having the shape of fibers. This group of the cellulose is practically insoluble in alkali (sodium hydroxide) at normal temperature (about 20 deg. C.).

The second group, the oxycellulose, consists mostly of material already present from nature or broken down in the manufacture of chemical pulp from wood. It does not at all have the form of fibers, and is probably working in the paper like a kind of size or filler, but as its yellow-brownish color will sadden through age and at the same time turn brittle, it is probably of more harm than benefit to the paper.

In contradiction to the alpha cellulose, it is dissolving in alkali but it can again (heated to a moderate temperature) be precipitated by the help of a weak acid, such as diluted acetic acid, forming a flocculent and structureless substance.

The third group, the glucose, may be considered as a natural sugarlike body, already present in plants. It dissolves like the oxycellulose in alkali but cannot be precipitated by acid. It remains in solution and leaves the paper machine together with the white water, and is at all events completely worthless to the papermaker.

The Mercerization Test

As the alpha cellulose is the most, or much more the only important of the three groups, as it represents the real papermaking material, the fibers of the cellulose, the testing of pulp means of course to determine its percentage of alpha cellulose, and to attain this, we make use of the mercerization test. As I recently have again improved my method for this test, into a practical combination of the method of the Bureau of Standards and my own, I shall describe it in detail in the following paragraphs, very easy to carry out:

(1) The fiber material must be exposed to the air for about 24 hours at normal conditions, 65 per cent moisture at a temperature of 70 deg. Fahr., to make it "air dry" (see the remark following paragraph No. 15).

(2) With the help of a Schrocter improved potato grater No. 1000 or No. 1500 (to be procured at any hardware store) about 4 grams of the air dry material is grated, preventing the forming of lumps or pieces.

(3) Tare a dry pyrex glass beaker (about 300 cc. capacity) and leave it upon the balance which must be sensitive to 1 mg.

(4) Place exactly 3.5 grams of the grated pulp in the bottom of the beaker using forceps about 200 mm. long, carefully avoiding the pulp to stick to the wall of the beaker, due to electric influence.

(5) Add 70 cc. of a fresh prepared 17.5 per cent solution of sodium hydroxide, as follows: Dissolve

25 gr. of sodium hydroxide C. P. in 25 cc. of boiled and cooled distilled water. Let the solution stand in a stoppered pyrex glass bottle until it becomes clear. Decant the clear supernatant solution, dilute with boiled and cooled distilled water to a specific gravity of 1.197 at 15 deg. C.

(6) Stir carefully, but as quickly as possible, until the entire pulp is completely mixed with the added 70 cc. solution, and place the beaker in a waterbath of 20 deg. C.

(7) Let the beaker with its contents stand in the waterbath for exactly one hour. During this time it is repeatedly stirred.

(8) Dilute with 250 cc. distilled water of 20 deg. C.

(9) Filter through a 75 mm. Buchner funnel furnished with a washed out nainsook cloth filter dried at 105 deg. C. to constant weight, and exactly cut to cover the bottom of the Buchner funnel which with help of a rubber stopper is fastened air tight into a pyrex glass Erlermeyer flask with side neck, capacity 4000 cc. The flask is then connected with a Harrington filter pump.

(10) Wash the beaker contents into the funnel with distilled water of 20 deg. C. and drain by moderate vaccum as far as possible.

(11) Wash the fibers upon the filter with distilled water of 20 deg. C. until no traces of alkali can be detected. Make use of moderate vacuum, during this and the following manipulations, but strong enough to prevent the filter from raising the edge. If necessary, keep the edge down with help of a glass rod or your finger, when the water is added, to prevent the fibers from slipping under the filter.

(12) Drain and then soak the fibers upon the filter with diluted acetic acid (4 cc. concentrated acid in 96 cc. distilled water) for five minutes.

(13) Wash with a 1000 cc. hot distilled water and rinse with cold distilled water.

(14) Drain as far as possible, then remove the filter cloth with the fibers carefully, and dry in the oven to constant weight at a temperature of 105 deg. C.

(15) This weight minus the known weight of the filter cloth is the weight of the alpha cellulose, and the percentage is calculated as follows:

$$\frac{\text{the weight of the alpha cellulose} \times 100}{\text{divided by the weight of the sample (3.5 gr.)}}$$

is equal to the percentage of the contents of bone dry alpha cellulose of the sulphite pulp in question.

Remark—Experience has convinced me that this calculation of bone-dry alpha cellulose in proportion to the weight of normal air-dry pulp is the most reliable of all methods, especially when no humidity room is available. At all events, it should always be stated in the report, whether the alpha cellulose is calculated as bone-dry or as air dry. To make the sulphite pulp bone-dry to start with is not advisable, as it is reliable to change its proportional conditions if exposed to high temperature.

If we want to know the amount of the contents of oxycellulose and glucose, we must transfer the contents of the Erlenmeyer flask into a sufficiently large beaker, place it in the waterbath (and if necessary add some more diluted acetic acid) to digest, until the precipitation which is formed coagulates sufficiently to be collected upon a paper filter of known dry weight. Then dry the filter with its contents in the oven at 105 deg. C. to constant weight. This weight minus the known weight of the filter is equal to the weight of the oxycellulose, and the weight of the alpha cellulose plus the weight of the oxycellulose, subtracted from the weight of the sample is, of course, the weight of the glucose. And from these figures the respective percentage of oxycellulose and glucose may easily be calculated.

We shall now illustrate this testing method through the report of a few experiments performed with a high grade sulphite pulp, and as the contents of alpha pulp is the main thing for us to know, we shall only determine this group, leaving the oxycellulose and the glucose out of the question. Nevertheless, for the matter of completeness, I shall briefly mention, that the sample used for experiment No. 1, besides being about 77 per cent alpha, contained about 20 per cent oxycellulose and 3 per cent glucose.

Experiment No. 1—3.5 gr. sulphite pulp gave as result 2.693 gr., or about 77 per cent (exactly 76.-8527) alpha, which means that besides that it also contained about 23 per cent decomposed cellulose or that nearly one quart of the pulp was worthless.

Experiment No. 2—It was above stated that alpha cellulose at normal temperature (about 20 deg. C.) is insoluble in sodium hydroxide. To prove this, we shall once more mercerize the 2.693 gr. alpha cellulose which was the result we obtained from experiment No. 1. As the weight stays constant, it is proved that the mercerization did not cause any change in the true cellulose which from the beginning was present in the pulp and that the decomposed cellulose therefore was a part of the pulp in question, as it came from the pulp mill.

Experiment No. 3—We will now direct our attention to another fact. If alpha cellulose is heated to a temperature over 100 deg. Fahr., and especially if it stays at such a high temperature for longer time it will gradually oxidize, absorbing oxygen from the air, and therefore a part of the sulphite pulp will be likely to decompose during the beating process, and the higher the temperature, the more it will break down.

The 2.693 gr. alpha cellulose from Experiment No. 2 was placed into a beaker with 50 cc. distilled water and heated during two hours at a constant

temperature of 40 deg. C. (104 deg. Fahr.), exposed to air (open beaker). Then the sample was filtered and dried, whereupon it was mercerized. The result was that the weight of the 2.693 gr. alpha cellulose had decreased about 2.5 per cent. And that is what may happen to the pulp during the beating at a too high temperature (over 100 deg. Fahr).

Experiment No. 4—What will happen to the alpha cellulose from this sample of sulphite pulp if we expose it to still higher temperature, is learned from this experiment.

The alpha cellulose from Experiment No. 3 was placed in a beaker with 100 cc. distilled water and heated to a constant temperature of 70 deg. C. (158 deg. Fahr.) for six hours, with the result that the weight of the alpha cellulose had decreased about 10 per cent and that it almost had lost its fibrous shape, now forming a pulverulent dust. And what happens in the beaker during six hours, will at equally high temperature start to take place and to a certain extent take place during the beating.

To show the difference between rag and sulphite pulp, also through the mercerization test, I shall reprint the report of two tests made some time ago.

Experiment No. 5—3.5 gr. air dry, absolutely clean cotton (the so-called "surgeon's cotton") was mercerized and gave 99.4 per cent alpha cellulose, which in spite of different times repeated treatment at increased temperatures stayed unchanged.

Experiment No. 6—For this experiment was used 3.5 gr. of an average papermaking rag material, new denims, and the result was 98.6 per cent alpha cellulose and like the cellulose of Experiment 5, the highest grade of cotton, it did not change during repeated mercerization at increased temperature.

This proves that the grade of rag has no influence upon the permanence (only upon the strength), and the chemist who some time ago in all simplicity wrote me a letter about a "grading of rags for permanence" is therefore "on the wrong scent."

If we compare the results of our experiments, we will see that:

A high grade sulphite pulp gave only 77 per cent alpha pulp.

An average rag material thereby as much as 98.6 per cent.

And last, but not least, the rag cellulose was permanent; it did not change its physical qualities exposed to temperature.

In this way, we have from these experiments learned:

1. That sulphite pulp, exposed to more or less strong, nevertheless not unusual, beater conditions, will suffer in **vitality** (Experiments Nos. 3 and 4).
2. That rag in contradiction to this is possessing real **permanence**, and
3. That different grades of rag have the same quality of permanence (Experiment No. 6).

And it must be remembered that these demonstrated experiments only are a few of many, which altogether gave the same average results.

That inexpedient treatment of the rag material, due to ignorance of practical papermaking, is nevertheless at least partly able to kill its prominent, eminent, and unique quality of permanence, and how to prevent such mistakes, we shall learn about in the next chapter of this series of articles.

Old Ideas of Forests Are Changing

Forests Modify But Do Not Make Floods Impossible

THE old absolute assertion that forests prevent floods is not the one accepted by foresters today. Floods are sometimes caused in spite of forests by exceptional precipitation and other conditions that cannot be prevented by the presence of forests, says the New York State College of Forestry at Syracuse University.

But forests modify stream flow. Under normal conditions they do prevent floods and do prevent dry stream beds and many springs from drying up, and under abnormal conditions greatly lessen the severity of floods compared with results that would occur in the absence of forests. It has been clearly demonstrated that forests equalize the flow of water in a stream throughout the year by making low stages higher and the high stages lower. This is due chiefly to the nature of the forest floor developed through centuries of falling leaves which absorbs water like a sponge and gradually lets it run away. A policy that fails to fully consider the influence of forests upon the flow of streams and erosion may easily endanger the most careful devised plans for conservation of game, fish and timber as well as recreational and agricultural development.

Erosion of the soil is becoming more important in this country as the tremendous projects for impounding water for power purposes, irrigation and potable uses develop. It has been discovered that in planning for some of the great dams, principally in the southwest, the forest factor has been overlooked and that methods must be considered now for the establishment of forests or brushes or other ground cover in order to regulate stream-flow, protect the bare soil and thereby prevent erosion and the big reservoirs from filling up with sediment.

In thickly populated states where the maintenance of a steady, potable water supply is necessary, the preservation of the forest watersheds is of paramount importance.

Do not consider yourself immune from accidents; realize that your past experience may mislead you. All persons are subject to accidents.—L. A. DeBlois.

Current Thought by William Sibley

The Threat of the Senate

THE American people as a whole, with all their investors, property owners and private businesses, are confronted with the threat of the complete elimination of the Supreme Court. And without the Supreme Court our Government will disintegrate into a Dictatorship, either that of a single man or that of the Senate. The American people face the peril of socialization and the fatal weakening of constitutional private rights. And this peril will probably crystalize within the coming six or eight years.

Our Supreme Court is the third ball to the governor on our governmental engine. Since the institution of our Government it has been the watchdog over our constitutional rights, and repeatedly has become the American people's principal bulwark against the encroachment of both ignorance and malice. It has been permitted to so function because since its origin the Supreme Court has ever represented the conservative element in our Government. Its inherent conservatism has enabled it to stop the hay-wire radicalism of either presidents or congresses, from Adams to Hoover. To-day the Supreme Court faces extinction, and the American people, thereby, their principal protector.

With the resignation of the late Mr. Taft, it became necessary for the President to appoint a new Chief Justice. Mr. Hoover sent the appointment of Mr. Hughes to the Senate for confirmation. Whereupon the entire nation was astonished at the show of strength by the Senate socialists and liberals.

In the senatorial debate which followed the nomination of Mr. Hughes, Senator Brookhart's statements were perhaps bolder than any others, and showed perhaps, greater perversion of truths. In his fight against Mr. Hughes, Senator Brookhart openly advocated revolution by force of arms and the overthrow of this Government, meanwhile calling upon the Declaration of Independence to support his thesis. Certainly, such invocation was entirely unnecessary. If any American citizen wishes to revolt against the Government of the United States he need call upon no document, for the right of revolution is inherent in the theory of free government. Judging by his actions and his words, however, Senator Brookhart doesn't want to start a revolution—he merely wants to preach it from the floor of the Senate—and does!

After quoting at length the American Declaration of Independence, however needlessly, and both misstating principles and perverting facts, he added: "I want this vote to be a test of the progressive principles of the members of the Senate as to political contests and issues. I hope it will become a landmark and a starting point; and if it is, and the people realize that the real trouble lies with the Supreme Court itself, they will then take this matter in hand and follow out the course which the Declaration of Independence itself lays down for a long line of abuses."

What was that course? The Declaration says: "When a long train of abuses and usurpations, pursuing invariably the same object, evinces a design to reduce them under absolute despotism, it is their right, it is their duty, to throw off such Government and to provide new guards for their future security." That is the course which Senator Brookhart wants the people to follow if the Supreme Court does not obey his commands. It is the course of revolution, and in preparation for that course he wished the vote on the Hughes nomination to stand as "a landmark and a starting point."

Mr. Hughes won over the senatorial opposition. But during the bombardment and attack on the floor of the Senate, the radicals succeeded in marshalling twenty-six votes against the Hughes nomination, out of a total of 78. The one-third of the Senate voting "nay" was the "starting point" for Senate radicals.

What saved Mr. Hughes for the Chief Justice chair was his enormous popularity and extraordinary record as a public man. Probably never before was there a man nominated for that office who was more widely and favorably known than Mr. Hughes—not even the former President and Chief Justice, the late Wm. Howard Taft. This unusual prestige threw the fear of the ballot box into the hearts of many Senators to the point where they were afraid to align themselves with the opposition and vote against him. But another nominee—not so well and favorably known as Mr. Hughes—ah, that would be a different matter. Unless he be a radical, any

nominee would have precious small chance of winning confirmation from that Senate.

The gauntlet had been thrown to President Hoover. The "starting point" had been made, and with the results we know through the rejection of Judge Parker.

What defeated Judge Parker was his conservatism. In his previous work as circuit judge he had joined with two others in a unanimous decision restraining a union from advocating a violation of a non-union contract, such as the Supreme Court had held lawful. The Supreme Court thereupon had been asked for a writ to reverse the decision of Judge Parker and his two associates, and it refused to do so. Judge Parker had acted in compliance with previous decisions of the Supreme Court; he had taken the law of the Supreme Court instead of the Washington headquarters of the American Federation of Labor, and because of this he was not radical enough to suit our socialist bloc in Senate—and was rejected.

The Supreme Court must rely on public opinion for its independence. Our constitution gives it certain safeguards but not enough to protect it or to make incorrect the statement of Hamilton when he said that the Supreme Court was unquestionably "the weakest of the three departments of power." It was he who revealed that the Supreme Court had no influence over either the sword or the purse; no direction over either the strength or the wealth of the nation; that it had neither force nor will, but merely judgment.

The force and the will are in the hands of the legislative and executive departments. If the President, or any one of his subordinates, should refuse to execute the decision or judgment of the Supreme Court, the court would be powerless to compel obedience. The only reason strict obedience has unhesitatingly been given the Supreme Court in the past is force of public opinion behind the court. Or, to go a step further: if any one of the lower courts in any state should refuse to accept the judgment of the Supreme Court, there would be no way for the Supreme Court to override the refusal and enforce obedience. The only reason lower courts hold in such high regard the decisions of the Supreme Court is—the force of public opinion.

To what extent the force of public opinion behind the Supreme Court has already been weakened by the recent debates on the floor of the Senate, no one can estimate. But for the Brookharts, the Norrisses, the Dills and the Borahs to openly advocate radical changes in or complete elimination of the Supreme Court means that in a certain measure the force of favorable public opinion has been weakened, for these radical senators do have a following. To what extent the coming senatorial battles and debates, together with the subsequent articles and editorials, will still further weaken public opinion is also indeterminate, but certain it is, all such influences have their direct bearing, since public opinion is flexible and can be changed.

For nearly 150 years the Supreme Court has relied on the strength of public opinion. And, by reason of our governmental structure, it will necessarily so rely for the ensuing century and a half. To-day it is public opinion which keeps Congress from crippling the court, and the President and lower courts from refusing to execute its mandates. In like measure, it is public opinion which keeps the very human men on the bench from an overweening conceit and a perilous autocracy. With the support and force of public opinion the Supreme Court has asserted the authority of the Federal Government against recalcitrant states; the rights of the states against a usurpatory Federal Government, and the private rights of the people against both.

The Supreme Court will perish, or at least become impotent, with the diminution of public favor. The radicals in Senate have avowed their undying resolve to confirm the nomination of only those men whom they know to be radical. Within the next few years, the irresistible force of age will compel the President refuse to bow to the demands of the the Supreme Court. Should the President bow to the demands of the radicals and nominate radical judges, confirmation of the appointment and a materially weakened court will come—quickly. Should the President refuse to bow to the demands of the radicals and nominate strong conservatives who will uphold the interests of commercial and private welfare, then more senatorial battles will be waged—each time with still furthur mining of the underpinnings of public favor for the court.

In this hour of assault, the Supreme Court vitally needs public favor. Nothing else can keep the court from becoming the mere tool and vassal of the legislative department—already influenced to a large degree by a coterie of socialist politicians hiding behind the flags of old parties. Furthermore, if the Supreme Court, for the sake of its independence, needs the rallying strength of public opinion, so also does the public, for the sake of its rights, sorely need the independence and conservatism of the Supreme Court.

Within a few years—not more than ten, probably—the majority of our present justices will have been replaced by new men. What kind of men they will be depends upon whether the radicals in Congress have their way. Two or three years ago superficial signs seemed to indicate that conservatism would reign for a long time. I, myself, writing in THE PAPER INDUSTRY just prior to the close of Coolidge's last administration voiced the belief that Coolidge policies would continue. What is the prospect now? Not so cheerful.

There should be a united and strenuous opposition of business to radicalism in all its aspirations, and most of all to its attempt to control the selection of appointees to the Supreme Court bench. The continued welfare of business needs the conservative Supreme Court fully as badly as the Supreme Court needs the help of Business.

The Paper Industry 1930 Safety Contest

January to May (inclusive) Cumulative Scores

13 Mills Start Last Lap

PERFECT SCORES

	ENTRANT	MILL	LOCATION
Group A	Kimberly-Clark Corp.	Badger-Globe	Neenah, Wis.
Group B	Crystal Tissue Co.	Middletown	Ohio
Group C	Port Huron Sulphite & Paper Co.	No. 1	Port Huron, Mich.
	Marinette & Menominee Paper Co.	Menominee	Michigan
	Sorg Oglesby Smith Paper Co.	Oglesby	Middletown, Ohio
	International Paper Co.	Webster	Orono, Me.
	Bird & Son, Inc.	Phillipsdale	Rhode Island
	The Upson Co.	Lockport	New York
	International Paper Co.	Livermore Falls	Maine
	United States Gypsum Co.	North Kansas City	Missouri
	International Paper Co.	Riley	Maine
	United States Gypsum Co.	Gypsum	Ohio
	Continental Paper & Bag Corp.	Greenwich	Conn.

Contest Closed

The Paper Industry 1930 Safety Contest ended June 30. The June scores will not be published and the final ranking of all mills participating will not be released until the National Safety Council meets in Pittsburgh, September 29 to October 4, 1930.

IMPERFECT SCORES

GROUP A				GROUP B				GROUP C			
		Points				Points				Points	
KEY	Rank	Credit	Debit	KEY	Rank	Credit	Debit	KEY	Rank	Credit	Debit
A-16	2	538.000		B-23	2	552.440		C-27	12	436.930	
A- 7	3	535.840		B-17	3	548.540		C-14	13	348.480	
A- 5	4	500.540		B-22	4	532.400		C-26	14	306.380	
A-23	5	489.320		B- 3	5	494.280		C-38	15	155.440	
A-12	6	447.580		B-35	6	391.460		C-12	16	155.000	
A-27	7	433.220		B-39	7	370.020		C- 5	17	148.660	
A-26	8	426.120		B-27	8	361.340		C-25	18	134.380	
A-21	9	407.200		B-30	9	359.720		C-11	19	131.600	
A-19	10	396.640		B-18	10	353.440		C-29	20	60.000	
A-25	11	383.640		B-41	11	313.380		C- 9	21	75.320	
A- 6	12	368.900		B- 4	12	259.080		C-30	22		9.700
A-30	13	366.020		B-25	13	258.780		C-47	23		199.220
A- 2	14	349.380		B-12	14	153.700		C- 2	24		214.260
A-15	15	333.920		B-31	15	133.960		C-22	25		289.100
A-24	16	328.160		B-10	16	127.260		C-15	26		293.040
A-33	17	325.500		B-19	17	77.660		C-34	27		475.320
A-14	18	269.160		B- 7	18	71.280		C-45	28		513.380
A-11	19	254.640		B-14	19	49.480		C-19	29		596.720
A-20	20	223.040		B- 1	20	20.080		C-17	30		665.300
A-28	21	164.660		B-15	21		91.700	C-20	31		729.620
A-10	22	130.940		B-26	22		100.680	C-32	32		812.900
A- 1	23	118.180		B-24	23		191.960	C-24	33		831.560
A-31	24	9.160		B-11	24		434.620	C- 8	34		910.420
A-29	25		73.900	B- 9	25		591.240	C-16	35		1110.980
A-22	26		93.360	B-38	26		628.280	C- 7	36		1261.720
A-13	27		93.500	B-40	27		692.820	C-21	37		1301.080
A- 4	28		166.460	B- 6	28		904.120	C-37	38		2254.440
A- 3	29		187.100	B- 2	29		916.700	C-18	39		2474.800
A-32	30		352.020	B-16	30		1042.420				
A-34	31		561.180	B-34	31		1165.020				
A- 9	32		634.440	C- 1	32		1381.740				
A-18	33		668.720								

April and May reports not received: B-5, C-23
May reports not received: B-28, B-29, B-32, B-33, C-10 and C-41.

Northeastern Division of Superintendents' Association

Annual Summer Meeting at Prout's Neck, Maine, Marked by Good Papers

AT the annual spring meeting of the Northeastern Division of the American Pulp and Paper Mill Superintendents' Association, held at the Checkley House, Prout's Neck, Me., June 27-28, the members were treated to a series of social and scientific diversions of unusual interest and value. There was a golf tournament on Friday and a musical entertainment in the evening, while on Saturday the members listened to papers by Dr. G. W. Coggeshall, Edwin Sutermeister and A. B. Green. Doctor Coggeshall discussed in a most informing address the various aspects of papermaking research. Mr. Sutermeister had for his subject the cooking of hardwoods for soda pulp in which he reviewed the work of the Forest Products Laboratory and his own experiences with hardwoods in the plant of the S. D. Warren Company at Cumberland Mills, Me., referring especially to white maple and white and silver birch and beech woods, which are prepared for pulping in the same manner as poplar.

A. B. Green, of the S. D. Warren Company, gave a thoughtful address on the control of beating and described an apparatus of his invention which is built by the Bird Machine Company. This instrument has an accuracy of determining beater density within one-tenth of one per cent.

At the business meeting Killey E. Terry read a letter from Carl Magnus, president of the national association, expressive of his regret at being unable to attend the division meeting. As a keynote or central thought for the members to keep before them during the year, Mr. Magnus said that there was no more important subject before the industry than that of "Production of pulp and paper at a profit." He made a strong plea to the division to work hard to get in new members as there were still a good many eligible men who were not identified with the association.

Among the interesting features of the meeting, apart from the papers mentioned, were a motion picture display of woodland operations and the manufacture of paper at the mills of the S. D. Warren Company, and motion pictures of the electric pulpwood rake used by the S. D. Warren Company. James Boyd, of the Maine Electric Company, Portland, Me., put on the exhibition and explained the operation of the power rake.

The business meeting was in charge of William Cape, chairman of the division. The fall meeting will be held in the White Mountains, either at Lancaster, N. H., or Bethel, Me.

Schweitzer & Conrad Merges with Cutler-Hammer

Announcement is made by Cutler-Hammer, Inc., Milwaukee, Wis., that on July 1, they acquired all common stock of Schweitzer & Conrad, Inc., Chicago manufacturers of high voltage equipment.

Schweitzer & Conrad will continue to operate as an independent manufacturing and selling unit. No changes in organization or personnel will be made except Mr. Beverly L. Worden, President of Cutler-Hammer has also been elected president of Schweitzer & Conrad.

Mr. Conrad and Mr. Schweitzer have been retained as consulting engineers and will continue their interest in the management as members of the Board of Directors.

Other members of the new Schweitzer & Conrad board are F. R. Bacon, who is chairman of the Cutler-Hammer board and F. L. Pierce and Louis A. Lecher who are also members of the Cutler-Hammer board.

Wisconsin Valley Safety Conference

Large Number of Delegates from Central Part of State Attend Second Annual Meeting

"ACCIDENT prevention a universal problem" was the keynote sounded at the opening of the second Wisconsin River Valley Safety Conference held at Wisconsin Rapids, June 26, with 400 in attendance. This was a record attendance considering the present business depression and the limited number of industries in the section.

GENERAL SESSION

The conference opened in the morning with a general session under the chairmanship of J. J. Plzak, safety engineer of the Consolidated Water Power and Paper Co. and general chairman of this year's conference. Four speakers addressed this session: George W. Mead, mayor of Wisconsin Rapids; H. C. Baker, chief of police, Racine; Ernest W. Corn, National Safety Council; and Harry K. ("Smoky") Rogers, engineer of the Fire Prevention Department of the Western Actuarial Bureau, Chicago, Ill. Mayor George W. Mead also introduced an honor guest, Dr. John R. Commons, Madison, Wis., long-time instructor in economics, and nationally known writer on economic subjects, who spoke briefly on the interpretation of the relationship between employee and employer as defined by the Industrial Commission.

"The mental attitude of both employers and employees toward the vital question of safety is the most important factor in its achievement," stated Dr. Commons. In his formula for making industry safe, he stressed three items of safety: the place of employment; the condition of employment, and the mental attitude of all concerned. It was indeed an honor to have present so noted a man as Dr. Commons.

Mayor Mead commended the organization for its prevention studies and activities and mentioned the Industrial Commission for its work in this connection.

Police Chief H. C. Baker gave an explanation of the new traffic code and how it is expected to operate, and predicted that its strict enforcement will go a long way toward the solution of the safety problem in traffic.

Community Safety Education

One of the most interesting addresses on the morning program was that of Ernest W. Corn, who insisted that accident prevention is not at all an individual problem and cannot be solved except through community co-operation. He stated that "safety is a frame of mind," and instanced the preventive measure used in the past for the suppression of the "white plague." In order that the public may cope with accidents it must first know what accidents are and where they are most likely to occur. Accidents were classified by Mr. Corn as: streets and highways; industrial, home and miscellaneous public. This group was further divided into child and adult, and controllable and uncontrollable.

The foremost of the uncontrollable accidents according to Mr. Corn, are those caused by drivers of privately owned automobiles, driven mainly for pleasure. The average commercial traveler covers 30,000 miles per accident, whereas the private owner averages one accident each 10,000 miles. The controllable accidents which are being lessened by safety are industrial, those of commercial vehicles, and to the child at school. In his opinion, the only possible solution for the rapidly increasing automobile accidents is through the regulation of drivers by licensing.

Fire Prevention

The final speaker of the morning session was Harry K. Rogers who gave a most effective emotional appeal for fire prevention. There is a fire alarm turned in once every minute throughout the entire 24 hours of every day. The economic loss due to fire in our nation amounts to $1,000,000,000 annually. Each year 6,000 people lose their lives in their homes due to accidental burns and scalds. He pleaded with his audience to become fire preventionists and above all to protect the children from fire, stating that 2,800 small children under five are fatally burned each year.

Immediately after the luncheon, approximately 1,000 children gathered in the armory to be entertained and instructed in fire prevention by the "Fire Clown," Harry K. ("Smoky") Rogers. The 45-minute demonstration was devoted entirely to teaching fire-safety to the children present through Mr. Rogers' delightful clown entertainment.

Following this unique lesson in fire-prevention, to which

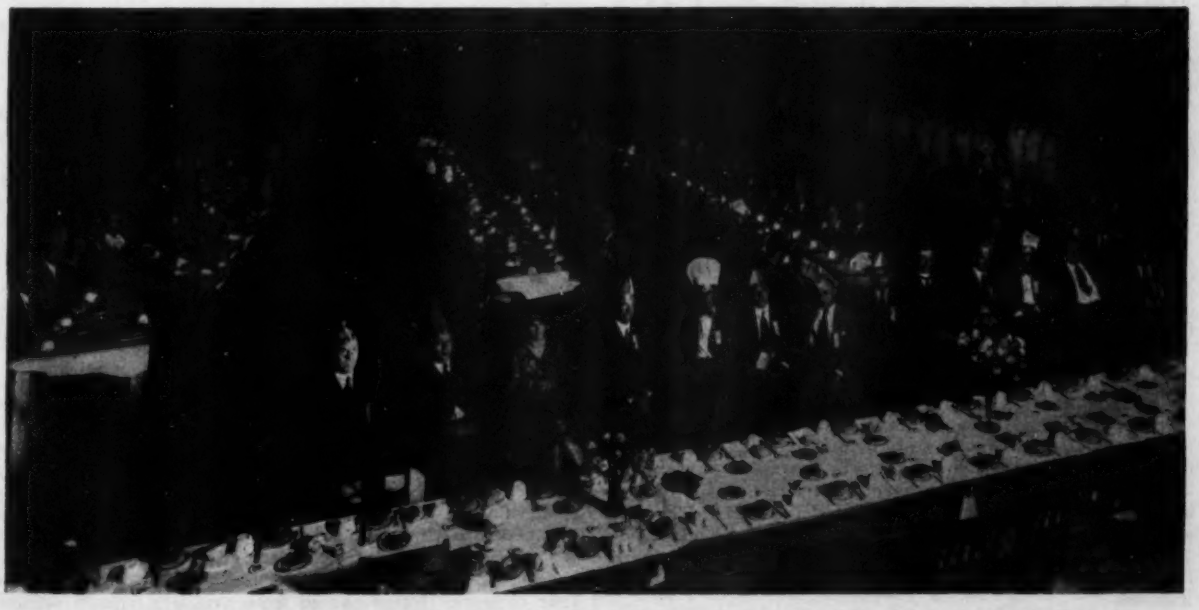

Photo taken at banquet of second Wisconsin Valley Safety Conference, June 26, 1930, at Wisconsin Rapids, Wis.

the delegates had been invited, the three afternoon sessions met at their respective places.

PAPER AND PULP SECTION

Paper Mill Close-Ups consisting of ten-minute talks with ten-minute discussions were the features of the paper and pulp section which met under the chairmanship of R. M. Altman, Marathon Paper Mills, Rothchild, Wis.

Mr. Altman opened the meeting with a short message calling attention to the accomplishments in safety work since 1912. He pointed out that co-operation in both operating and safety work is necessary.

Men in industry have co-operated for the welfare of the entire industry. We have now passed the stage where guarding was of major importance. It is now a matter of education, stated Mr. Altman.

He expressed a wish at this meeting for an exchange of ideas—a closer relationship between allied industries in presenting to each other their problems and hazards with possible solutions.

Wood Yard Dangers—The first paper mill close-up was delivered by John Normington, yard superintendent of the Consolidated Water Power and Paper Co. Mr. Normington discussed the many dangers in the wood yards, such as: switching cars of logs hurriedly loaded, the use of inadequate car stakes, unclean yards, obstruction of walk lanes along side tracks, wires sticking out of wood piles causing a serious eye hazard, pushing loaded cars with car stake instead of pulling with a cable, operators going between cars to make couplings, unlimited hazards of night crane operation, and many others.

Mr. Normington stressed the importance of picking loose sticks off a high pile of pulpwood to prevent the stick from rolling off and causing injury to those below. When piling peeled-wood, it was his opinion that men should be warned daily of the hazards. He pointed out that his cranes were equipped with bells to signal the movement of the crane to avoid accidents. A wooden mat is provided for the crane operators upon which they stand to reduce to a minimum the lightning hazard. The removal of rubbish and poor car stakes is of vital importance in operating a yard. The removal of snow in the winter was stressed.

Mr. Normington concluded by stating that of most importance in crane operation was a careful man. With a good, responsible crane crew many accidents in the wood yard can be eliminated.

Hazards in Wood Room—A short general discussion followed after which C. M. Green of Mosinee gave a talk on Wood Room Hazards. He pointed out that one way to discourage hazards was to make every injured man appear before a safety committee and explain in detail the accident sustained. In the speaker's opinion, such a procedure was far-reaching in forestalling, preventing and cutting down accidents. Mr. Green stated that out of every three accidents two are caused by carelessness and one by mechanical causes. He emphasized the importance of a wide-awake foreman, who by talking, practicing and living safety will accomplish satisfying results.

Such hazards as repairing slasher haul-up chains while saws are running, carrying chipper knives and slasher saws by hand instead of in proper carriers, and others were uncalled for in a properly supervised wood room. The need of foreman and his men co-operating together was stressed.

Machine Room Hazards—This subject was discussed by G. H. Suhs, Rhinelander. In the machine room with its heavy large gears, large heated surfaces and the tremendous speed which brings about a nervous strain, one would think that the accidents could be attributed to the above causes, but instead records show accidents in the machine room are caused as follows: finger smashed under shaft, shaft dropped on foot, toe mashed by truck wheel, hand crushed in reel, and many others. This, Mr. Suhs stated, proved conclusively that most of the accidents are not of a mechanical nature, but self-inflicted with the majority of them caused by carelessness.

In his opinion the future problem of accident prevention, is the constant educating of men as to the hazards in their respective occupations.

Safeguards—On the subject "Some Safe-Guards in the Paper Mill," M. J. Mollen, of the Nekoosa-Edwards Paper Co., demonstrated a safety device on trimmers and guards for drums. A general discussion followed regarding the present type of guards on slitters. This discussion proved to be very educational and many important matters were brought up and answered regarding this phase of safety.

Supplying Steam by Safe Methods—In discussing "Safe Methods of Supplying Steam in Paper Departments," Mr. Lewis Pauls of Marathon, stressed the importance of using proper reducing valves, pop-off valves, and pressure gauges wherever live steam is used. All steam hose connections, Mr. Pauls pointed out, should be reinforced by some means other than the regular connections provided.

Electrical Hazards—Walter J. Drew, of Marathon, pointed out the various electrical hazards in the paper department. The moist atmosphere in the paper department, due to the abundance of water, greatly accentuates this hazard. Improper guarding of electrical equipment, and the abuse of portable equipment, is a contributing factor toward electrical accidents, and the speaker stated that carelessness through familiarity with electrical equipment on the part of the electricians themselves, is responsible for many serious accidents.

Safety and Work—The discussion of this subject by W. F. Ashe, of Thilmany, afforded a splendid climax for the paper session.

"We all know that we have to work," said Mr. Ashe, "and we like to do our work as well as possible and get along as well as we can. Our jobs make us. We are to our community what our jobs have made us. We also know that we can get more production with men who have their limbs, and possess years of experience, than with men who are maimed or lack experience. The foreman's major responsibility is to direct men in the easiest and safest method of doing their work. Authority given a foreman does not amount to anything. Authority taken by the foreman to shoulder his responsibilities is the authority that counts. A good foreman will fight for his men. He may find it necessary to reprimand his men at times and bawl them out, but let some foreman from another department unjustly criticize his men, he is sure to demand an apology."

Mr. Ashe closed with the thought that, "Safety is my responsibility for the men whom I direct, and leads to greater satisfaction, personal growth and possibly a better position."

The general discussion that followed, and the enthusiasm shown proved conclusively the success of the session.

"ALL TRADES" SECTION

The All Trades Section meeting under the chairmanship of George Giffin, Curtis & Yale Co., Wausau, presented a very unique program. The chairman opened the meeting by giving a short talk on the importance of accident prevention, and the splendid opportunity a meeting of this type afforded to cope with accidents when men who are deeply interested in the subject can exchange ideas pertaining to it.

Carelessness and Electricity

The first address, "Elimination of plant electrical hazards," was given by E. A. Prain, of the Wisconsin Valley Electric Company.

Mr. Prain stated that by reason of the fact that electricity is invisible and noiseless, it has long been considered by the layman as one of those dangerous and mysterious forces which should be avoided. Very often do we hear the remark, "I do not know a thing about electricity, and if I have any trouble with my electric system or equipment, I call the electricians." This attitude on the part of many people is believed to have eliminated a number of would-be accidents.

The chief dangers of electricity cited by the speaker are: shocks, burns, flashes, and fires. He went on to discuss these four dangers. Burns caused from arcs are usually serious, and this hazard, the electrical arc, can be eliminated by

proper maintenance of equipment to prevent loose joints of current-carrying equipment and proper switch installation. Switches should always be opened quickly and not slowly to avoid arcing.

Mr. Prain stated that overloading of plant equipment contributed to plant hazards. In all instances proper protective equipment should be installed to do away with the problem of overloads. Proper testing and inspecting is of vital importance in maintaining electrical equipment, stated the speaker.

The proper use of rubber gloves, rubber blankets, insulation, and other protective equipment was pointed out. Proper housekeeping also plays an important part in the elimination of electrical hazards.

In conclusion Mr. Prain said, "It has always been our attempt to eliminate the mental hazard in the minds of our employees as well as the physical. We like to have our men and their families feel that when the breadwinner leaves home to go to his labors, we are doing everything possible to insure his safe return. After all has been said and done, it is also a relief to the executives of our company, to feel that everything is being done to make working conditions safe, enjoyable, and profitable."

Guarding Woodworking Saws

The next subject was the care and guarding of woodworking saws presented by Henry Schreiber, Deputy, Industrial Commission of Wisconsin. Mr. Schreiber gave an interesting talk on the hazards of the woodworking industry citing many accidents which he had investigated in his many years of experience as deputy. In each instance he told briefly the cause of the accident, the results, and what could have been done to prevent it. His many years of experience in this line of work afforded a splendid opportunity for those present to ask questions regarding the methods used to guard dangerous points of woodworking equipment. He stressed the problem of teaching the old chap the right way being more difficult than that of teaching the new one. It is the old-timer, stated Mr. Schreiber, that usually gets into trouble. You must get him to do the job the right way so that he not only protects himself, but teaches the new man the right way of doing the job.

Safety Interest

The last talk of this session was given by C. F. Otto, of the Employers' Mutual Liability Insurance Company, on the subject "Maintaining Interest in Safety."

Mr. Otto gave a very inspirational and educational discourse on the subject of safety. He pointed out safety as a problem of the changing world. We have progressed more in the past few years than in the last 200 years. The foreman is a foreman by virtue of the fact that he possesses what the other fellow does not. Almost every man is the same—we have our false pride, our ego, but in the long run we are about the same—we have our troubles and our gratitudes.

Mr. Otto believed that the problem of the foreman in accident prevention is, first: understanding. He must understand his department and his men if he is to be a success. He must get the greatest production at the lowest cost. He must next instill the spirit of co-operation in his department. It is a matter of pulling together. It must be co-operation from the heart and not from the head. The next point to consider is enthusiasm. In order to put safety across, one must inject enthusiasm into his men. Safety is a spirit—you must have understanding in your heart, or safety is a flop. With these three major points established, understanding, co-operation and enthusiasm, the fourth, namely, results, will come of its own accord.

Mr. Otto stressed in closing the necessity of injecting more human relationship into one's work in order to obtain the results desired.

INDUSTRIAL NURSING AND FIRST AID SECTION

A very interesting and educational program was presented at the Industrial Nursing and First Aid Section under the chairmanship of Miss Joanna M. Johnson, R. N., Employers' Mutual Liability Insurance Company.

Miss Johnson gave a brief outline of the purpose of the Industrial Nursing section, and voiced herself ready to give full co-operation to the repetition of such a session at future conferences.

Safety Committee Recommended

Following the welcome by J. J. Plzak, the first subject to be discussed was organization of a safety program by Frances Silbaugh, R. N., Oscar Mayer and Co., Madison, Wisconsin. Miss Silbaugh pointed out during the course of her talk, the importance of setting aside a certain day for safety meetings in the plant. Further, it was necessary to have everyone notified regarding the meeting. A change of personnel on the safety committee every few months is of vital importance in organizing a successful safety program.

In plants where there are 500 workers, the safety committee should consist of at least eight people. Both the nurse and employment manager should be members of this committee.

The nurse should always work for good fellowship and should educate the employees to learn that she is working for and with them.

Responsibilities of the Industrial Nurse

This talk was followed by "Industrial Nurse—How Big Is Your Job?" discussed by Doctor A. S. Sullivan of Madison.

Dr. Sullivan stated that industrial nursing is a comparatively new field having been organized about 17 years ago. A great deal has already been accomplished, he stated, but much yet is left undone.

The successful industrial nurse must bear in mind first: The welfare of the patient: second the employer, and third the insurer, stated Doctor Sullivan.

The nurse must use discretion in treating wounds. She must be careful to consider each and every wound with utmost care and determine whether she is to tend to it or refer it to a Doctor. This she must do in order to protect herself from a possible case of malpractise. In each industry a panel of doctors are posted from which the employee can make a choice.

The doctor further stressed the importance of treating all puncture wounds of any consequence with lockjaw serum. It is the duty of the nurse or first-aid operator to see that these patients are referred to the doctor for the serum.

In closing, Dr. Sullivan stressed that the industrial nurse should always be on the alert and have the welfare of her patient first in mind.

Foot Injuries

The talk on the reduction of foot injuries was delivered by Lucy DeMuth, R. N., Ladish, Drop Forge Company, Cudahy, Wisconsin. She described foot injuries as those caused by puncture, falling objects and burns. The prevention of foot injuries could be accomplished by educating workers to wear safety shoes wherever they are subject to this type of injury, and by proper means of handling heavy equipment. She stated that although a very satisfactory safety shoe is now being manufactured, the industry is continuing to experiment in the hopes of making a more comfortable safety shoe.

DINNER MEETING

The evening banquet which brought to a close a day of safety inspiration and education, consisted of a program of humor, wit and philosophy. Two general speakers, George W. Mead, president of the Consolidated Water Power & Paper Co. and Professor U. C. Hewitt of Oshkosh Normal College delivered the addresses of the evening.

Mr. Mead made a plea to the members of the conference not to forget the lessons they had learned at the meetings, but to carry them home with them and pass them along. In his talk on the subject "How the Executive Looks at Accident Prevention," Mr. Mead traced briefly the history of accident prevention as far back as 1912. He pointed out the necessity of co-operation and said that it was the most im-

portant part of safety work. He closed with the statement that "eternal vigilance is the price of light."

"Words are the golden goblets that hold the wine of thought," said Professor Hewitt in the closing address of the evening, "and without a sense of humor we are bound to have a sad life." He recited some interesting examples and mentioned that no person should apologize for having told a story over, but that a good story should be told over and over again, as humor is better than medicine.

Unique entertainment comprised of local talent afforded the delegates an opportunity to relax and change from the more serious to the lighter vein of thinking.

Revise Safe Practice Pamphlet

George E. Burns, National Safety Council, asked a number of safety engineers of the valley to meet the day prior to the conference to continue work begun a month ago in revising the paper and pulp safety practice pamphlet.

Those present at this one-day meeting were, George E. Burns, safety engineer, National Safety Council, R. A. Keown, chief engineer, and Deputies Russell, Schreiber, King, Soldner, all of the Industrial Commission of Wisconsin. Franz Rosebush, Nekoosa-Edwards Paper Co.; Mr. Stringer of Mosine Paper Co., J. J. Plzak of Consolidated Water Power & Paper Co., and R. M. Altman, Chairman of the Paper & Pulp Code.

A Century-Old Business Leader

The census taker of 1830 was partly finished with his task when the grand old man of American business, Henry C. Graton, was taking his first peep at a brilliant July sunshine. Andrew Jackson was in the White House. The population of the country was about that of the metropolitan area of New York City at the present time. The gold rush to California was not yet dreamed of. West of the Mississippi was wilderness and desert. Only 24 states comprised the Union, and some of these were still pretty much in the possession of hostile Indians. Madison and Monroe were still alive. Lincoln was an obscure lawyer. Henry Clay, the fiery young orator from Kentucky, who was destined to play an important part in American history, was at that time visiting the towns of Massachusetts. His speeches made such an impression upon the Graton parents that the boy was named Henry Clay Graton.

Such is the picture of 100 years ago when on a farm in Leicester, Mass., on July 10 a baby boy was born who was later to become the head of one of the largest leather belt manufacturing concerns in the world. To-day the Graton & Knight Company, of whom this man was a founder, is in its 80th year of existence, and the man who was its guiding genius during most of these years still lives in good health to look back upon a splendid accomplishment. To enjoy a hundredth birthday is a privilege that is accorded to few of us. To live through 100 years of such stupendous changes as this man has seen in the industrial development of America seems hardly possible. To have seen and lived in the same town with men who fought at Bunker Hill and who served in the ragged armies of Washington seems almost incredible.

Young Graton grew up as many boys in those days did working on his parents' farm long hard hours, building a physique that was later to give him a century's outlook on life. At the age of 21 he and a friend of his, Joseph A. Knight, decided to go into the leather belt building business. In a two-room shop which measured only 20 x 60 ft. the gigantic Graton & Knight enterprise was launched. These two boys combined funds and between them the munificent amount of $800.00 formed the entire capital behind the concern. Henry Graton and his partner, however, were not daunted, because of their small resources. With the splendid courage, self reliance and perseverance so characteristic of the early founders of great industries, they worked long hours in their tiny room, currying and cutting leather which was made into belting to be sold to nearby shops. The day of the machine age was rapidly drawing near and Graton was one of the first to appreciate and recognize it. Factories, small ones to be sure, were being built everywhere, and the need of leather belting was already apparent.

The first sales by Mr. Graton were naturally made to neighboring concerns, and all through the history of the company there has been a real effort made to promote the development of the friendly, neighborly idea that was so much in evidence in the early days. How well this has been accomplished is proven by the fact that many of the original customers still appear on the books of the company. The business friends of the Graton & Knight Company of those pioneering days included many of the outstanding American manufacturers. Such manufacturers as Chickering, the piano firm; Wm. Crompton the manufacturer of the first American power loom; Rome Iron Works; Ichabod Washburn, inventor of a method for spinning piano wire. It is doubtful if any community in this country was the birthplace of more epoch-making industries than the little community in which this leather belting pioneer had the foresight to start his modest business.

Mr. Graton with a twinkle in his eyes tells of "the good old days" when he traveled 30 miles a day in search of business. Stage coaches were used as conveyances to the nearby towns. Railroads did not amount to much, and rather than trust to the very uncertain service, he usually traveled the roads or train tracks on foot. It was usually quicker to walk between towns than to wait for the trains. Practically all of his selling was done from a sample pack that he carried over his shoulder. It was entirely fitting just a few weeks ago that he, the first salesman of the Graton & Knight Company, should be accorded the honor of opening the sales convention of that company and of addressing its salesmen who came from every part of the country for conference.

Much of the business of those early days was done on a trading basis, and many times it was necessary to give belting to a customer in exchange for the commodity of their manufacture. All kinds of things were taken in payment of bills. Frequently on the floor of the little shop would be seen such articles as horse rakes, clothing, machines of various sorts, bolts, nuts, and wire goods. The Chickering Piano people frequently needed belting, and though they were perfectly solvent, they did not always have the funds to pay for it. Their pianos were taken in exchange for belting and then it was up to young Graton to sell pianos along with his leather line.

During Mr. Graton's first years of business none of the great names of present day American industry had yet come into the picture. John D. Rockefeller was still a student at school. Jay Gould was likewise studying at an academy. Andrew Carnegie was working in a Pittsburgh steel mill. Henry Clay was senator from Kentucky. Daniel Webster, Secretary of State. The first rumblings of a great conflict were just being heard, and John Brown's body was yet to lie mouldering in its grave.

There is something amazing about this story of the lifetime and one hundredth birthday of a man who is perhaps the dean of America's manufacturers. There is something of the intensely romantic about this 100-year-old industrialist who has seen practically the whole panorama of American business unfold before his eyes—this still alert, ruddy faced, blue eyed man who founded a great company—this splendid man upon whom the rays of the last sunset now shine only to enhance even more his contribution to the progress of American industry.

Secretary of General Electric Retires

Concluding forty-one years of continuous service with the General Electric Company, John T. Broderick, secretary of the company's manufacturing committee retired from active service July 1, 1930.

Mr. Broderick is one of the best known men in the manufacturing organization of General Electric. He was elected secretary of the manufacturing committee shortly after its organization in 1893, which position he has held ever since, an unbroken period of thirty-six years.

Canadian Technical Section

Large Number of Members Attend Profitable and Enjoyable Summer Meeting and Visit Mills

THE growing popularity of the summer meetings of the Technical Section of the Canadian Pulp and Paper Association is evidenced by the ever-increasing number of members attending them from year to year. This year the Section met at Ottawa, on June 12 and 13, and the total registration, including a number of ladies, was over 60. Business and pleasure were very happily combined, the program comprising a thorough discussion of the work program and methods of procedure of the Pulp and Paper Division of the Forest Products Laboratories of Canada, visits to the mills of Canadian International Paper Co. at Gatineau and of the E. B. Eddy Co. at Hull and to the Forest Products Laboratories of Canada at Ottawa, and winding up with an impromptu golf tournament on the course of the Rivermead Golf Club, Ottawa.

At the opening of the first session, R. A. McInnis, chairman, announced amid hearty applause that O. F. Bryant, at present manager of the Nashwaak Pulp and Paper Co., St. John, N. B., had been appointed secretary of the Section. The rapid development of the work of the section in recent years, and more particularly since the completion of the Cellulose Research Institute which also houses the Pulp and Paper Division of the Forest Products Laboratories, rendered imperative the appointment of some one who could act as a liaison officer, so to speak, between the industry and the Forest Products Laboratories and who could also help considerably in the work being carried on in many of the larger mills. The selection made by the Executive Committee of the Technical Section and the Joint Administrative Committee of the Pulp and Paper Research Institute is an exceptionally happy one, and no one possesses better qualifications for the new office than Mr. Bryant, a past chairman of the Section, who, after spending several years at the Pulp and Paper Division of the Forest Products Laboratories of Canada, held responsible technical positions with the Laurentide Company and the Nashwaak Pulp and Paper Co.

Committees Arrange Interesting Discussions

The meeting then divided into three committees to discuss various phases of the program of E. P. Cameron and his coworkers at the Pulp and Paper Division of the Forest Products Laboratories. J. O. Mason presided over the Newsprint Committee, C. Nelson Gain over the Fine Paper Committee and F. L. Mitchell over the Sulphite Committee. The discussions were continued during the afternoon under the chairmanship of D. L. McLeod, G. H. Tomlinson and W. G. Cuttle, who directed the Groundwood, Soda and Sulphate, and Heat and Power Committees, respectively. The discussions showed that the tentative program submitted had been carefully worked out, and that the results of the work should be of inestimable value to the industry. Many valuable suggestions were made, which will be incorporated into the work. At first, some doubt was cast as to the usefulness of results obtained on a small, slow machine, such as the one at the laboratories, when the time would come to apply them to the operation of modern high-speed news machines. It was explained, however, that it was possible to work backwards by analyzing the influence of machine conditions on a sheet produced from good stock. Preliminary work could be done at the laboratories, and the application of the results thus obtained could be subsequently tested out in the mills under high-speed operating conditions. It was also suggested that the scope of the investigation on newsprint should extend from the flow-box to the reel, and that very little, if anything, of value could be obtained by working piece-meal.

In the course of the discussion on groundwood, E. P. Cameron described an interesting piece of apparatus which was designed at the laboratories, by means of which it is hoped to study the quality of pulpstones by rotating a large wooden disk (about 15 inches in diameter) against a small piece of the stone under investigation (about 1 inch by 2). It is expected that this instrument will permit doing much preliminary work much more quickly and cheaply than could be done on the grinder in the laboratories, the latter being used to test the conclusions drawn from the preliminary tests. This idea met with the unanimous approval of the members present.

Award First Medal for Prize Paper

There were two interesting features to the Thursday luncheon: the awarding of the I. H. Weldon Medal for the best paper presented at the Annual Meeting of the Technical Section last January and a fine after-dinner speech by George Carruthers, president of Interlake Tissue Mills.

After the last annual meeting a committee was appointed to examine the papers presented. The task of the committee was rendered doubly difficult by the large number of papers, and also by the fact that the award was being made for the first time. Of the papers submitted, three were considered to be of special merit, having in mind the rules laid down; but the final and unanimous decision of the three judges was that the award should be made for the paper contributed by Frank Mitchell, or Abitibi, for his paper on the circulation of liquor in sulphite digesters. As A. L. Dawe, the donor of the medal, attended the luncheon, he was called upon to present it to Mr. Mitchell.

Section to Prepare Books for Publication

George Carruthers then spoke briefly on one of his favorite subjects, books. He announced that the Woodlands Section was preparing the text for a book on logging, "not a very poetic subject, it is true, but one which bears a fundamental relationship to the paper industry." The material is being edited by A. M. Koroleff, forester of the Woodlands Section of the Canadian Pulp and Paper Association. At a meeting of the Joint Committee on Textbooks held that very morning, the idea was looked upon very sympathetically, and the committee now has under advisement ways and means whereby it may be of assistance in the publication of the book. Passing on to another idea, Mr. Carruthers said that there were many men in the industry who felt that, inasmuch as the paper business had reached a national status in Canada, the time had come when we should have some history of the beginnings of the Canadian paper industry, that is to say, we should have biographical sketches of the pioneers, those men who went before us, and also as full particulars as possible concerning the character of their mills. Considerable material has already been gathered for this work, and the speaker's object in bringing up the point at that particular time was that there was a fine opportunity for members of the Technical Section to do a little historic research and help the industry to perpetuate the memory of those fine old pioneers who laid the foundation of the industry.

After the adjournment of the committee meetings in the afternoon, a moving picture film was shown by the Maine Electric Co., of Portland, Me. It showed the operation of a pulpwood rake made of steel plate and cast steel fingers, the whole being entirely electric welded. This rake is operated by a 200-horsepower motor and handles from three to four cords per trip. The rake was designed in the first instance for distributing wood on the pile from a stationary conveyor, but has been found equally efficient in recovering wood to the return conveyors.

Members Visit Mills

Friday morning about half the members visited the Gatineau mill of International Paper; a smaller party visited

the mills of the E. B. Eddy Co., at Hull, while a few enthusiasts made for the Rivermeade golf links. In the afternoon, the Forest Products Laboratories of Canada at Ottawa were open for inspection by the members. The main attraction, however, was a golf tournament on the course of the Rivermead Golf Club. This has now become a regular feature of the Technical Section Summer Meetings, but this year added interest was provided owing to the donation of a trophy by R. A. McInnis, chairman of the Section, which will henceforth be competed for every year. The first winner of the trophy was R. M. Drummond, of Canadian International Paper Co., Gatineau, Que., who turned in the lowest gross score of 90 for 18 holes.

Paper Schedule In New Tariff Law

Owing to the Addition of the Rayon Schedule, Paper, Formerly Schedule 13 Under the Tariff Act of 1922, became Schedule 14 Under the Act of 1930

PAR. 1401. Uncoated papers commonly or commercially known as book paper, and all uncoated printing paper, not specially provided for, not including cover paper, one-fourth of 1 cent per pound and 10 per centum ad valorem: **Provided**, That if any country, dependency, province, or other subdivision of government shall forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly), or impose any export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, or wood pulp, or wood for use in the manufacture of wood pulp, the President may enter into negotiations with such country, dependency, province, or other subdivision of government to secure the removal of such prohibition, restriction, export duty, or other export charge, and if it is not removed he may, by proclamation, declare such failure of negotiations, setting forth the facts. Thereupon, and until such prohibition, restriction, export duty, or other export charge is removed, there shall be imposed upon printing paper provided for in this paragraph, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty of 10 per centum ad valorem and in addition thereto an amount equal to the highest export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon either an equal amount of printing paper or an amount of wood pulp or wood for use in the manufacture of wood pulp necessary to manufacture such printing paper.

Par. 1402. Paperboard, wallboard, and pulpboard, including cardboard, and leather board or compress leather, not plate finished, supercalendered or friction calendered, laminated by means of an adhesive substance, coated, surface stained or dyed, lined or vat-lined, embossed, printed, decorated or ornamented in any manner, nor cut into shapes for boxes or other articles and not specially provided for, 10 per centum ad valorem: **Provided**, That for the purposes of this Act any of the foregoing less than twelve one-thousandths of one inch in thickness shall be deemed to be paper; sheathing paper, roofing paper, deadening felt, sheathing felt, roofing felt or felt roofing, whether or not saturated or coated, 10 per centum ad valorem. If any country, dependency, province, or other subdivision of government imposes a duty on any article specified in this paragraph, when imported from the United States, in excess of the duty herein provided, there shall be imposed upon such article, when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, a duty equal to that imposed by such country, dependency, province, or other subdivision of government on such article imported from the United States.

Par. 1403. Filter masse or filter stock, composed wholly or in part of wood pulp, wood flour, cotton or other vegetable fiber, 20 per centum ad valorem; indurated fiber ware, masks composed of paper, pulp or papier-mâché, and manufactures of papier-mâché, not specially provided for, 25 per centum ad valorem; manufactures of pulp, not specially provided for, 30 per centum ad valorem.

Par. 1404. Papers commonly or commercially known as tissue paper, stereotype paper, and copying paper, india and bible paper, condenser paper, carbon paper, coated or uncoated, bibulous paper, pottery paper, tissue paper for waxing, and all paper similar to any of the foregoing, not specially provided for, colored or uncolored, white or printed, weighing not over six pounds to the ream, and whether in sheets or any other form, 6 cents per pound and 20 per centum ad valorem; weighing over six pounds and less than ten pounds to the ream, 5 cents per pound and 15 per centum ad valorem; india and bible paper weighing ten pounds or more and less than twenty and one-half pounds to the ream, 4 cents per pound and 15 per centum ad valorem; crêpe paper, commonly or commercially so known, including paper crêped or partly crêped in any manner, and paper wadding, and pulp wadding, and manufactures of such wadding, 6 cents per pound and 15 per centum ad valorem; **Provided**, That no article composed wholly or in chief value of one or more of the papers specified in this paragraph shall be subject to a less rate of duty than that imposed upon the component paper of chief value of which such article is made: **Provided further**, That the term "ream" as used in this paragraph means two hundred and eighty-eight thousand square inches.

Par. 1405. Papers with coated surface or surfaces, not specially provided for, 5 cents per pound and 15 per centum ad valorem; papers with coated surface or surfaces, embossed or printed otherwise than lithographically, and papers wholly or partly covered with metal or its solutions (except as herein provided), or with gelatin, linseed oil cement, or flock, 5 cents per pound and 15 per centum ad valorem; uncoated papers, including wrapping paper, with the surface or surfaces wholly or partly decorated or covered with a design, fancy effect, pattern, or character, except designs, fancy effects, patterns, or characters produced on a paper machine without attachments, or produced by lithographic process, 4½ cents per pound and 10 per centum ad valorem, and in addition thereto, if embossed, or printed otherwise than lithographically, or wholly or partly covered with metal or its solutions, or with gelatin or flock, 10 per centum ad valorem: **Provided**, That paper wholly or partly covered with metal or its solutions, and weighing less than fifteen pounds per ream of four hundred and eighty sheets, on the basis of twenty by twenty-five inches, shall be subject to a duty of 5 cents per pound and 18 per centum ad valorem; gummed papers, not specially provided for, 5 cents per pound; simplex decalcomania paper not printed, 5 cents per pound and 10 per centum ad valorem; cloth-lined or reinforced paper, 5 cents per pound and 17 per centum ad valorem; papers with paraffin or wax-coated surface or surfaces, vegetable parchment paper, grease-proof and imitation parchment papers which have been supercalendered and rendered transparent or partially so, by whatever name known, all other grease-proof and imitation parchment paper, not specially provided for, by whatever name known, 3 cents per pound and 15 per centum ad valorem; bags, printed matter other than lithographic, and all other articles, composed wholly or in chief value of any of the foregoing papers, not specially provided for, and all boxes of paper or papier-mâché or wood covered or lined with any of the foregoing papers or lithographed paper, or covered or lined with cotton or other vegetable fiber, 5 cents per pound and 20 per centum ad valorem; plain basic paper ordinarily used in the manufacture of paper commonly or commercially known either as blue print or brown print, and plain basic paper ordinarily used for similar purposes, 20 per centum ad valorem; sensitized paper commonly or commercially known either as blue print or brown print, and similar sensitized paper, 25 per centum ad valorem; unsensitized basic paper, and baryta coated paper, to be sensitized for use in photography, 5 per centum ad valorem; sensitized paper, to be used in photography, 30 per centum ad valorem; wet transfer paper or paper prepared wholly with glycerin or glycerin combined with other materials, containing the imprints taken from lithographic plates or stones, 65 per centum ad valorem.

Par. 1406. Pictures, calendars, cards, labels, flaps, cigar bands, placards, etc. . . . . .

Par. 1407. (a) Correspondence cards, writing, letter, note, drawing, and handmade paper, paper commonly or commercially known as handmade or machine handmade paper, japan paper and imitation japan paper by whatever name known, Bristol board of the kinds made on a Fourdrinier or a multicylinder machine, ledger, bond, record, tablet, typewriter, manifold, onionskin, and imitation onionskin paper, and paper similar to any of the foregoing, all the above weighing eight pounds or over per ream, 3 cents per pound and 15 per centum ad valorem; if ruled, bordered, embossed, printed, lined, or decorated in any manner, whether in the pulp or otherwise, other than by lithographic process, 10 per centum ad valorem in addition; correspondence cards, and writing, letter, and note paper, in sheets less than one hundred and ten square inches in area, shall be subject to an additional cumulative duty of 5 per centum ad valorem.

(b) Sheets of writing, letter, and note paper, with border gummed or perforated, with or without inserts, prepared for use as combination sheet and envelope, and papeteries, 40 per centum ad valorem. The term "papeteries" as used in this paragraph means writing, letter, or note paper, or correspondence cards, together with the envelopes, packed or assembled into boxes, portfolios, folders, or other containers, in which such articles are sold as a unit to the ultimate consumer, including such containers.

(c) The term "ream" as used in this paragraph means one hundred and eighty-seven thousand square inches.

Par. 1408. Paper envelopes, filled or unfilled, whether the contents are dutiable or free, not specially provided for shall be subject to the same rate of duty as the paper from which made and in addition thereto, if plain, 5 per centum ad valorem; if bordered, embossed, printed, tinted, decorated, or lined, 10 per centum ad valorem; if lithographed, 30 per centum ad valorem: *Provided*, That paper envelopes which contain merchandise subject to an ad valorem rate of duty or a duty based in whole or in part upon the value thereof shall be dutiable at the rate applicable to their contents but not less than the rates provided for herein.

Par. 1409. Jacquard design on ruled paper, or cut on Jacquard cards, and parts of such designs, 35 per centum ad valorem; hanging paper, not printed, lithographed, dyed, or colored, 10 per centum ad valorem; printed, lithographed, dyed, or colored, 1½ cents per pound and 20 per centum ad valorem; wrapping paper not specially provided for, 30 per centum ad valorem; blotting paper, 30 per centum ad valorem; filtering paper, 5 cents per pound and 15 per centum ad valorem; paper commonly or commercially known as cover paper, plain, uncoated, and undecorated, 30 per centum ad valorem; paper not specially provided for, 30 per centum ad valorem.

Par. 1410. Unbound books of all kinds, etc. . . . . .

Par. 1411. Photograph, autograph, scrap, post-card and postage-stamp albums, etc. . . . . .

Par. 1412. Playing cards.

Par. 1413. Papers and paperboard and pulpboard, including cardboard and leatherboard or compress leather, embossed, cut, die-cut, or stamped into designs or shapes, such as initials, monograms, lace, borders, bands, strips, or other forms, or cut or shaped for boxes or other articles, plain or printed, but not lithographed, and not specially provided for; paperboard and pulpboard, including cardboard and leatherboard or compress leather, plate finished, super-calendered or friction calendered, laminated by means of an adhesive substance, coated, surface stained or dyed, lined or vat-lined, embossed, printed, or decorated or ornamented in any manner; press boards and press paper, all the foregoing, 30 per centum ad valorem; test or container boards of a bursting strength above sixty pounds per square inch by the Mullen or the Webb test, 20 per centum ad valorem; stereotype-matrix mat or board, 35 per centum ad valorem; wall pockets, composed wholly or in chief value of paper, papier-mâché or paperboard, whether or not die-cut, embossed, or printed lithographically or otherwise; boxes, composed wholly or in chief value of paper, papier-mâché or paperboard, and not specially provided for; manufactures of paper, or of which paper is the component material of chief value, not specially provided for, all the foregoing, 35 per centum ad valorem; tubes wholly or in chief value of paper, commonly used for holding yarn or thread, if parallel, 1 cent per pound and 25 per centum ad valorem; if tapered, 3 cents per pound and 35 per centum ad valorem.

Control of Printed-Abroad Advertising

Foreign competition in direct mail advertising, developed through the printing abroad of advertising literature, mailed under foreign postage from European cities to the customers of American merchants, is the subject of an administrative provision of the Tariff Act of 1930, now in effect. The new provision is of vital consequence not only to domestic paper manufacturers, but also to American lithographers and printers, and to the working men employed in these industries.

This provision, not hitherto referred to in reports of the provisions of the new tariff law, was enacted through the efforts of the Import Committee of the American Paper Industry.

Back of that provision is a practice which has grown to tremendous volume in the last few years, under which American merchants would order printed abroad advertisements, often handsome in artistic design, of their domestic business. This direct mail advertising, mailed abroad, and carrying a foreign postage stamp and post mark would invariably attract the attention of the person addressed. The appeal of such advertising was such that one of the transatlantic steamers carried on one trip 36,000 pieces of advertising matter for a single American merchant. The representatives of the foreign printers established elaborate suites of offices in New York and other large cities for the sale of such advertising to American dealers.

This practice deprived American paper manufacturers, printers, lithographers, and working men of a large volume of business, because all such material came to this country duty free. If shipped in quantities to an American consignee such literature would be dutiable at rates of duty ranging from 25 per cent upward according to the method of production.

The Import Committee of the American Paper Industry, working in behalf of American paper manufacturers took up this question in an effort to have this material held dutiable under the Tariff Act of 1922, but international postal practices delayed definite action. With a tariff revision pending, it was decided to seek a provision in the new law which would specifically provide for the imposition of a duty on such shipments.

The test of the provision relating to advertising material, contained in the new law, and which specifically excludes such direct mail advertising matter from free entry, is as follows:

"Sec. 320. Reciprocal Agreements Relating to Advertising Matter—With the advice and consent of the President, the Secretary of the Treasury and the Postmaster General, jointly, may on behalf of the United States, enter into a reciprocal agreement with any foreign country to provide for the entry free of duty in the respective countries of dispatches or shipments through the mails of circulars, folders, pamphlets, books, and cards, in the nature of advertising matter (except such matter as may be printed, manufactured, or produced in a foreign country, advertising the sale of articles by persons carrying on business in the United States or containing announcements relating to the merchandise or business of such persons) to individual addresses, and may, in the event any such agreement is entered into, prescribe such rules and regulations as they may deem necessary relating to the customs and postal treatment of such matter in the United States."

In its investigations on this subject the Import Committee of the American Paper Industry collaborated with the New York Employing Printers, the Lithographers' National Association and other interested organizations, including representatives of the American Federation of Labor.

Wisconsin Cost Division Meets

Members Discuss Affiliation with National Association of Cost Accountants

WHETHER or not the Wisconsin Division of the Cost Department, of the American Paper and Pulp Association will become affiliated with the Milwaukee Chapter of the National Association of Cost Accountants, will be left to a vote of the entire membership, following a general discussion of the matter at the semi-annual meeting of the organization held at Essex Lodge, on Saturday, June 28.

The delegates present seemed to favor this move, but because of a smaller than usual attendance, it was thought best to get a more complete expression from all the mills before definite action is taken.

John Conley of the Milwaukee chapter of N. A. C. A. spoke to the membership on the work of the national organization and prompted the discussion on affiliation with that group. Messrs. Westphal and Johns of the Milwaukee Tabulating Machine Company, led in a discussion of the advance of machine bookkeeping in an effort to simplify and make possible more detailed work in cost accounting.

The evening session was opened with a banquet served at seven o'clock, sixty people being present. Special entertainment was furnished by the local committee. Following the banquet, the ladies motored to the home of Mrs. S. B. Bugge, wife of the vice-president and general manager of the Tomahawk Kraft Paper Company, where bridge was enjoyed.

"The Treatment of Capital Stock Without Par Value on the Balance Sheet" was ably presented in a paper by Fred C. Kellogg, of Elwell, Kickhofer & Co., of Madison, Wis., in which he cleared up many faulty practices in accounting of this subject in order that stockholders might have a clearer and more defined statement regarding the capital structure of concerns whose certificates they hold. New rulings by various state governments were given covering these entries and their proper handling.

His paper, the full text of which appears immediately after this report, was followed by a general discussion and round table of questions pertaining to various phases of capital stock accounting.

The remainder of the evening was given over to a dancing party by the entire evening.

In the afternoon, a blind bogie golfing contest was held on Essex Lodge course, competition being divided into two groups, of members of the association and guests. A. M. Van Douser of the Marathon Paper Mills of Rothschild was awarded the prize for members with a low score of 80 and Ed. Kulas of the Tomahawk Kraft Paper Company received the guest's prize with a score of 86.

Selection of a place for the next meeting was left to the executive committee.

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The Treatment of Capital Stock Without Par Value on the Balance Sheet

By FRED C. KELLOGG, C.P.A.

The subject of capital stock without par value is one about which a great deal has been written during the last ten years. It is a big subject and there have been many different views expressed as to the proper accounting treatment of such stock. The writers of recent books, however, seem to be in closer agreement on the fundamental points and base their ideas on sound accounting principles without regard to what may be permissible under many of the state laws. The balance sheet, of course, reflects the treatment of the stock on the books of the corporation and, as a consequence, we must have the fundamentals of the whole subject in mind when considering this subject. I will attempt to touch the points that are perplexing so that we may have a real live discussion when I have finished.

Inasmuch as the underlying considerations in this paper are to be stock certificates, net worth and balance sheets, it is well that we fix in our minds at the outset certain principles in regard to each. A stock certificate expresses the contract between the stockholder and the corporation and whether or not it states a value in dollars, it is nothing more than an evidence that the legal holder thereof is entitled to a certain participation in the corporation's net worth based on the number of shares issued. The net worth of a corporation consists primarily of capital paid in by the stockholders and surplus (or deficit). Capital paid in usually can be in the form of cash, other property and services, and often, in the case of par value stock, the total value of the consideration received by a corporation for its stock is either more or less than the total par value thereof. In order to show the par value separately, it has been necessary to use accounts variously called Capital Stock Premium, Capital Stock Discount, Paid in Surplus, Capital Surplus, etc. Regardless of the title, however, the balance in such an account is nothing more than a part of the capital contribution. Surplus may be of several kinds: earned surplus available for dividends; earned surplus set aside by the corporation's directors for some particular purpose; and unearned surplus such as that arising from appreciation of assets. When referring to the second part of net worth, in general, I will call it surplus only, recognizing however, that there may be a deficit instead of a surplus. Deficits will be mentioned later. A balance sheet is a photograph of a business at a given moment and as such it should show all of the existing financial facts as clearly as it is possible to show them.

Probably I should call your attention to the fact that all state statutes provide some manner in which the issuing value of no-par stock may be determined. Some states require that the articles of incorporation shall state a value per share below which the stock may not be originally issued. This is called stated value and stock having such a stated value is not true no-par value stock even though the stated value does not appear on the stock certificate. The majority of state statutes, however, give the power of determining the value at which the stock shall be issued to the directors or to the stockholders.

True no-par shares are those concerning which no stated or par value is designated either upon the stock certificate or in the articles of incorporation. In general, this is the type with which we are concerned. With these points in mind, we may now proceed to the problems that may arise in connection with the preparation of a balance sheet for a corporation having capital stock without par value.

Let us first take up the subject as it concerns common stock.

Original Issue of No-Par-Value Stock

Consider a company incorporated with an authorized capital of 10,000 shares of no-par common stock. We will assume that 5,000 of the shares were issued at $40 per share for cash and that the remaining 5,000 shares were issued for property which was valued at $175,000. The capital stock account would then show 10,000 shares of stock outstanding at $375,000, and these facts should appear in the balance sheet in the same manner. This is the simplest condition that will be met but it illustrates the cardinal point claimed for the use of no-par-value stock; namely, that the capital stock account will at all times represent the actual value at which the stock was issued.

If, subsequently, the articles of this corporation are amended to authorize an additional 5,000 shares which are issued at $45 per share, $225,000 should be credited to the capital stock account without regard to the average issuing price of the original stock which was $37.50 per share. If an attempt were made to create a premium account it would be an approach to the par-value idea. The corporation has received a total of $600,000 in cash and property and has issued

therefore 15,000 shares of stock. The balance sheet would show this fact by placing $600,000 opposite the designation capital stock with a notation such as 15,000 shares without par value authorized and outstanding.

Merging Capital Stock and Surplus or Deficit on the Balance Sheet

It is the accepted practice for corporations which have par value stocks outstanding to segregate the capital contributed under the caption "capital stock" on their balance sheets. A separate account shows undistributed profits under the caption "surplus." There seems to be a tendency, however, for corporations having no-par stock outstanding to include under the caption "Capital Stock of NO-Par Value" not only the consideration received for the issuance of the stock but also the undistributed profits from operations. Another prevalent tendency is that of carrying no-par stock outstanding at a nominal amount, say $1, and showing the balance of the net worth—that is, the actual contributed capital and surplus—under the title "surplus." Both of these methods are breaches of sound accounting principles and are in violation of sound business policy.

A principle known as the trust fund doctrine is well founded in American law. That principle is that all corporations have a stated capital which may not be distributed to stockholders at the expense of the unsecured creditors. This capital is specifically covered in the case of par value stock and in those states where it is necessary to include a stated value in the articles of incorporation in respect to no-par value stock. Most statutes are mute as to stated value in respect to true no-par value stock and provide only for the determination of the original issuing value. While the courts as yet have not been called upon to decide this matter, most students of the subject believe that the only logical decision would be that the consideration originally received would be the stated capital.

As previously mentioned, it has been the custom in the case of par value stock to show the stated or par value on balance sheets under the title "Capital Stock," and in the absence of a statement to the contrary, it is to be implied that the amount opposite such a caption is stated capital. It does not seem reasonable that a balance sheet should show the corporation's net worth in such a way as to hide essential information. The creditors are entitled to know what portion of the net worth is legally impounded for the security of their claims.

There is just a chance that a creditor may turn to his own advantage the improper method of displaying the entire net worth upon published statements under the head of Capital Stock. For illustration, assume that the corporation had received $100,000 as consideration for its no-par shares issued. Now assume that the corporation acquires a surplus from profits of $50,000—distributable among stockholders in dividends. But this corporation applies to a banker for an unsecured loan and presents to him a balance sheet upon which appears the item "Capital Stock No-Par Value $150,000." There is no surplus; it has been merged with stated capital, but the banker is not given notice of the fact. The loan is extended for $50,000. The corporation declares a dividend of, say, $25,000, just 50 per cent of the former surplus. Can the banker object to this melon-cutting? There is strong reason to believe that he can apply to a court of equity for an injunction against the declared dividend, and that the injunction will be issued. The banker can plead that in granting the loan he relied largely upon the fact that the corporation's balance sheet displayed a stated capital of $150,000.

Change from Existing Par Stock to No-Par Stock

No question should arise as to the manner of recording the substitution of no-par stock for existing par value stock when there are no proprietary accounts to consider other than capital stock and earned surplus (or a deficit). The entry clearly would be a debit and a credit to Capital Stock to wipe out the old stock and to set up the new at the same value. There seems to be no justification for the consideration of earned surplus (or a deficit) in the determination of the value to be set up for the new no-par stock as it is considered a possibility by some. Certainly an existing deficit could not be wiped out in this manner without specific authorization from the state to reduce the stated capital particularly in those states where the "trust fund doctrine" obtains. As to the inclusion of earned surplus in the new value to be set up for the stock, it would seem that the case would be no different had the change been made from shares having a par value of $100 per share to shares having a par value of $25. It is a plain case of simple substitution and it would seem far-fetched to hold that the existing surplus had been converted into stated capital.

A question probably will arise if a capital surplus account exists at the time a change is made from par to no-par stock. Consider a corporation having outstanding common stock of $100,000 par value, capital surplus of $25,000 resulting from the sale of the stock at a premium and an earned surplus of $50,000. The articles are amended to authorize the issue of 1,000 shares of no-par-value common stock to take the place of the outstanding par value stock. One might find either of the two following entries to record the change:

Capital Stock—Old	$100,000	
Capital Surplus	25,000	
Capital Stock—New		$125,000

or

Capital Stock—Old	$100,000	
Capital Stock—New		$100,000

The second of these entries does not consider capital surplus and for that reason does not seem to be in keeping with the no-par stock idea. The facts are that the company originally issued its capital stock at $125,000 and now it merely puts into the hands of its stockholders certificates which do not carry a stated value on their face. The capital surplus account was used only that the account capital stock might show the par value of the stock outstanding. With no-par stock outstanding after the change there is no par value to be shown separately. Therefore, why continue to carry capital surplus? If the account is continued on the books it is an admission that one still has par value in mind, because the amount of capital surplus was determined by deducting the par value from the issuing price of the original stock.

A different situation arises, however, if the capital surplus is the result of a revaluation of assets. Such an account would more properly be designated Appreciation Surplus or some similar title. It should not be wiped out and buried in the capital stock account if the accounts and the balance sheets prepared therefrom are to show the facts. An increase in the value of a corporation's assets which has not been realized by a sale is important information to anyone reading that corporation's balance sheet. Furthermore, this reasoning does not contradict what has been discussed previously, because no capital stock has been issued in exchange for such increased value.

No-Par-Value Treasury Stock

The fact that a company's stock has no par value will not eliminate treasury stock. It may exist with no-par stock where it might exist with par stock, and will be acquired either by donations or purchases.

It seems fairly well agreed that treasury stock of no par value donated should not be placed on the records at any value until it is sold and then at the selling price. When it is acquired, an entry should be made in memorandum indicating the number of shares donated. The balance sheets prepared during the time such stock is held would present capital stock as follows:

10,000 shares authorized and issued	
1,500 shares held as donated treasury stock	
8,500 shares outstanding	$500,000

Such a presentation gives the facts. Stockholders paid in capital of $500,000.00 and that contribution remains unchanged in the hands of the corporation regardless of the number of shares that are given back to it. When the stock is sold, the amounts received should be credited to capital stock, because the amounts received from such sales are really additional capital contributions. Why credit donated

surplus or some similar account? Donated surplus is nothing more than paid in capital. It certainly isn't earned from operations, and to go back to the beginning of this paper we saw that net worth is made up of owner's capital contributed undistributed earned surplus available for dividends or deficit, and of appreciation of assets.

Assuming that the 1,500 shares of treasury stock was sold at $55 per share the balance sheet presentation would then be:

Common Stock of No Par Value:
10,000 authorized and outstanding.....$582,500

Here again we have the facts, There are 10,000 shares of stock in the hands of stockholders and the corporation received paid in capital of $582,500.00, with which to do business.

There seems to be considerable difference of opinion as to the best method of handling treasury stock when it is purchased at a price above or below the issued price. Consider a company that had issued 10,000 shares of no-par common stock at varying prices, the average of which was $35 per share, and had later repurchased 1,000 shares at $40 per share, which it now holds as treasury stock. The company's earned surplus is $60,000. Assuming that it is desirable to show treasury stock in the balance sheet as a deduction from capital and not as an asset, the following presentations are being advocated.

(a) Common Stock of No Par Value:

10,000 shares authorized and issued..	$350,000	
1,000 shares treasury stock purchased	40,000	
9,000 shares outstanding	$310,000	
Earned Surplus	60,000	
Total Proprietary Interest	$370,000	

(b) Excess over average issue price paid for treasury stock, $5,000. The above to be carried as a deferred item on the debit side of the balance sheet.

Common Stock of No Par Value:

10,000 shares authorized and issued..	$350,000	
1,000 shares treasury stock purchased	35,000	
9,000 shares outstanding	$315,000	
Earned Surplus	60,000	
Total Proprietary Interest	$375,000	

(c) Common stock of No Par Value:

10,000 shares authorized and issued..	$350,000	
1,000 shares treasury stock purchased	35,000	
9,000 shares outstanding		$315,000
Earned Surplus	$60,000	
Deduct excess over average issue price paid for treasury stock.....	5,000	55,000
Total Proprietary Interest		$370,000

(d) Common Stock of No Par Value:

10,000 shares authorized and issued.	$350,000	
Earned Surplus	60,000	
Deduct 10,000 shares treasury stock purchased	40,000	
Total Proprietary Interest	$370,000	

Probably the most logical way to pass judgment on the above presentations is to first consider what happens when such treasury stock is sold. If the treasury stock is sold at $40 per share, the price at which it was purchased, no problem is encountered. If, however, the stock is sold at $36 per share, one is confronted with the problem of disposing of $4,000, the excess of the cost over the selling price of the treasury stock. What has happened? The earnings from operations clearly haven't been affected. The facts are that the corporation actually has less contributed capital by $4,000 than it previously had. It would seem, therefore, in view of the facts that the excess of the cost over selling price of the treasury stock sold might properly be charged to Capital Stock. If this reasoning is correct, then the first presentation of treasury stock mentioned is most in accord with the facts.

The Declaration of Stock Dividends and the Satisfaction Thereof With the Issuance of Stock of No Par Value

Some advocates of no-par stock maintain that stock dividends should have no place in a no-par stock corporation. The argument advanced is that the stock certificates are nothing more than participation certificates and consequently an issue of additional certificates without the receipt of any additional capital would not change the net worth situation. That is true, but it is equally true in the consideration of stock having a par value. Perhaps the point in the minds of those who advance this argument is that there would be no value that could be transferred from Earned Surplus to Capital Stock since the certificates have no stated value. This is not a real objection, the statutes all provide for determination of a value at which no-par stock shall be issued as has been previously pointed out. If a stock dividend is justified for a corporation having stock of par value it is likewise justified for a corporation having stock of no par value.

The procedure would be the declaration of a fixed amount out of accumulated profits, payable in capital stock at a specified issue value per share. The issue of additional certificates of course, would have to be authorized in the usual manner. An entry should be made charging Earned Surplus and crediting Capital Stock for the amount of the dividend. It is advocated by some that the Capital Stock account, after the declaration and payment of a stock dividend in no-par-value stock, should show separately the number of shares so issued and the issuing value thereof. This, of course, would be in keeping with the point of showing the facts.

Stock of No Par Value Preferred as to Assets

Such stock is certainly not much of a change from the par-value idea, but it exists and as such we must consider it. The principal problem in regard to this class arises only when it is issued at a value different from its liquidation or redemption value. Again we must consider that the balance sheet should show the facts. The important facts in connection with this stock are the amount paid in and the amount per share at which it will be redeemed or the amount of preference in the event of liquidation, and the more important fact of the two is the amount of capital paid in. Therefore, it would seem that the best presentation in the Capital Stock account and on the balance sheet would be to show the number of shares issued at the issuing value and to show the redemption value as a memorandum.

Some suggest that the redemption value be the one shown on the balance sheet and that the difference be considered as a part of the common stockholder's equity.

I realize that I have only touched the high points of this whole subject and that I have not covered all arguments pro and con, but I hope that enough points have been raised so that we can now have a profitable discussion.

Improvement in Leather Belt Making

The modern, scientific Tension Cementing process of flat leather belt making perfected by Graton & Knight Company, Worcester, Mass., is a wholly new and revolutionary development in the leather belting industry. For this process a unique type of belt making machinery (patents applied for) was invented by the Graton & Knight engineers.

In making leather belting this machinery practically eliminates the possibility of error, due to the human equation. The cement used is waterproof, extremely flexible, has a very high heat crystallization point and its entirely mechanical application positively insures more uniform and vastly stronger adhesion than has ever before been possible in cementing the laps and plies of leather belting.

T. Linsey Crossley is now making his headquarters in the laboratory of the Don Valley Paper Company, Toronto. While retaining his interest in The Industrial Laboratories, Limited, he will devote his time entirely to consultation and testing in the technology of pulp and paper.

Boiler Plant Developments in Strawboard Mill

Ball Brothers Paper Mill at Noblesville, Indiana, Modernize Boiler Plant Resulting in a Saving of $40,000 Annually

By HARRY E. WESTON
Staff Representative

THE manufacture of paper from straw in this country began nearly one hundred years ago. Records state that Humphreyville, Conn. was the home of the first mill in the United States to produce paper from this raw material. This Humphreyville mill began to produce paper from straw in 1837.

During the intervening years an industry of no little importance to the entire field of papermaking has developed. This development during recent years has been contemporary with the manufacture of corrugated shipping containers.

Straw paper of .009 caliper and having a weight of 34 to 38 pounds per thousand square feet is commonly employed for the inner corrugated sheet of container board used in the production of boxes. This use is dependent upon the fiber characteristics of straw which give to the board rigidity and yet resiliency in the arch formed by the corrugation of the paper.

To obtain the desired characteristics in a corrugating board, it is essential that the straw receive proper chemical treatment in a manner somewhat similar to the treatment of wood for chemical pulp, although the treatment is much less drastic. Large quantities of steam are therefore required for cooking the stock and also for the generation of electrical energy because most of the straw mills are located considerable distances from hydroelectric developments. Such process requirements, therefore, permit an opportunity for the use of by-product power.

The Ball Bros. Co., well known manufacturers of mason jars, purchased during 1923 the paper mill of the American Strawboard Co., at Noblesville, Indiana. This plant was obtained to manufacture the strawboard used in the production of the containers manufactured in their plant at Muncie, Indiana, for use in the packing and shipment of mason jars, and to market all surplus production above their own requirements.

The power plant at the time the strawboard mill was purchased by the Ball Bros. Co. included an installation of six 2,540 square feet hand-fired boilers of the Sterling type. These boilers were provided with a short stack and operated under very poor draft conditions. Conditions in the engine room were also far from satisfactory from the standpoint of operating efficiency.

Realizing the importance of the power plant to the successful operation of the board mill caused Ball Bros. Co. to place early emphasis upon its modernization.

The first step along the lines of power plant modernization included the elevation of two of the old boilers to increase the furnace volume and the installation of an impact mill for use in conjunction with one of the boilers which had been raised. No provision was made for air cooling or other means of protecting the furnace walls.

The result of this change was far from satisfactory. Attempts were made to pulverize and burn a variety of Indiana coals which contained approximately 12 per cent moisture, 8 per cent ash and over 1 per cent sulphur. These coals were burned without drying and caused considerable trouble.

In the first place, the Indiana coal could not be properly pulverized. Only about 30 per cent of the pulverized coal would pass a 200-mesh screen. Then the power consumption on the pulverizer was excessive. Forty-two kilowatts were required to maintain the speed of the pulverizer, and 14.2 kilowatts were required to operate the fan. The difficulties experienced in pulverizing with the impact mill were probably due partially to the high moisture content of the coal.

In actual operation, an 8,000 pound pulverizer reduced 5,440 pounds of coal per hour and required 21.4 kw. hr. per ton of coal pulverized. During combustion, the coarse particles naturally dropped to the bottom of the furnace and caused an unusual amount of slag.

A test run to determine the operating efficiency of the installation showed 70 per cent efficiency at 150 per cent rating. An excessive quantity of air was required to push the rating over 100 per cent. In fact, so much air was required that the CO_2 was greatly reduced.

The second step was the substitution of a ball and tube mill for the impact mill. The results of this change were no more satisfactory than the first.

During 1925 it was deemed advisable to install a new 1,000 hp. Badenhausen boiler equipped with an integral economizer, air preheater, and water walls. This boiler was designed to operate at 265 pounds pressure, and was to be fired from pulverized coal prepared by the ball and tube mill. After the installation of the new boiler was placed into operation it was still found that the guaranteed efficiencies produced through the operation of the ball and tube mill could not be obtained.

Pulverizers and burners of recent design together with the use of preheated air in the pulverizers—a system now used very satisfactorily by at least one paper mill on coal where the moisture content is extremely high, might have given the desired results. It was not, however, the desire of the company to experiment further with pulverized coal. Therefore, they next considered the possibility of burning Indiana coal on underfeed stokers by using preheated air. The co-operation of the Barberton plant of the Pittsburgh Plate Glass Co., a plant in which was installed a Sterling type boiler of about the same size as the new Badenhausen boiler and at the same time equipped with an 8-retort underfeed stoker 25 tuyeres deep, was obtained. Ten or twelve carloads of Indiana coal were shipped to this plant and tests run to determine whether such equipment was suitable for burning this fuel. The tests indicated that such equipment was suitable for burning Indiana coals, and resulted in an order being placed for a Taylor underfeed stoker to be installed under the Badenhausen boiler at the paper mill.

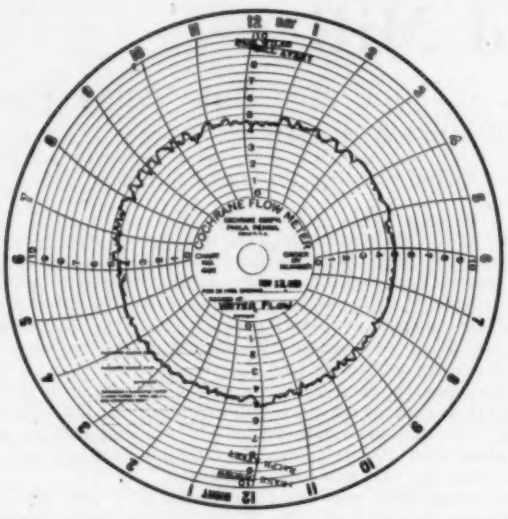
This stoker has 8-retorts and is 41 tuyeres long. It is motor driven and is equipped with an hydraulically operated, double roll clinker grinder. The projected grate area of the installation is 243.2 square feet.

The installation of the stoker demanded ingenuity. There was insufficient basement space, which necessitated the extension or carrying out of the front furnace wall for three feet and the raising of the stoker about seven feet above its normal position.

The Badenhausen boiler installation included, in addition to the stoker, an integral economizer, vertical water walls, and an air preheater. The economizer with 2,240 square feet of surface was connected to the boiler by outside circulating tubes. The vertical water walls within the furnace were designed with an exposed area of 400 square feet, while the air heater of the tubular type was designed with 10,000 square feet of surface. This heater was installed to receive the gases after they left the economizer.

The boiler was likewise equipped with one Clarage forced

draft fan and one Clarage induced draft fan, both units motor driven, to supply air for combustion and to draw the gases through the preheater. The Bailey integrating flow-meters, Diamond soot blowers, Ellison draft gages, Copes boiler feed

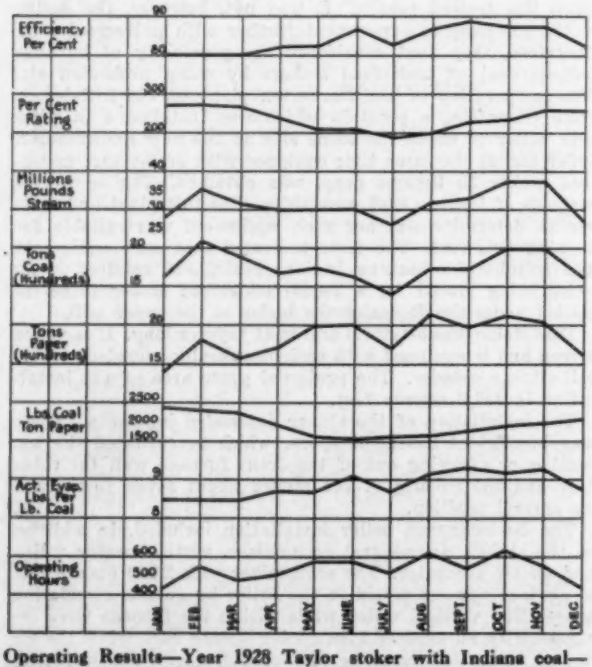


water regulator and a Cameron multistage boiler feed pump driven by a G. E. steam turbine were other items of auxiliary equipment.

A 48-hour test was conducted by the Commercial Testing and Engineering Co. of Chicago, as soon as the completed unit was ready for operation, to determine the operating characteristics of the installation as well as costs. The results of this test are incorporated in the following table.

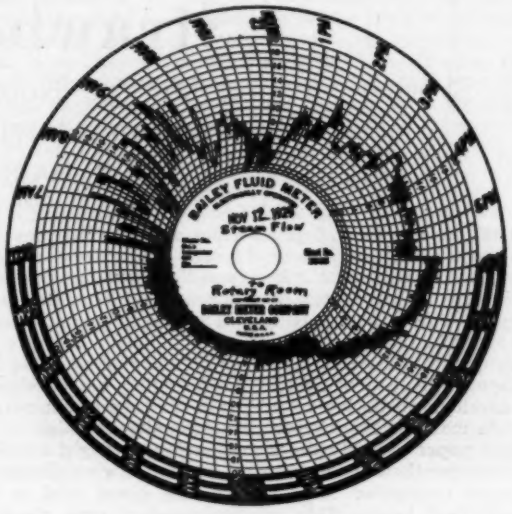
DIMENSIONS OF EQUIPMENT

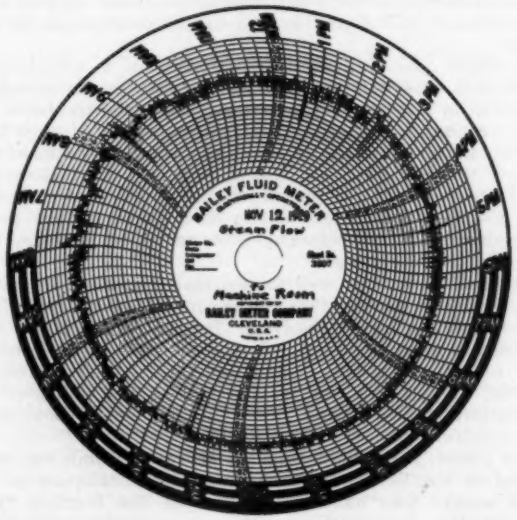
Boiler heating surface, sq. ft.	7,960
Economizer surface, sq. ft.	2,240
Air heater surface, sq. ft.	10,000



Operating Results—Year 1928 Taylor stoker with Indiana coal—11,300 B.t.u. as fired Badenhausen boiler, 7960 sq. ft.; economizer, 2240 sq. ft.; air heater, 10,000 sq. ft.; Taylor rotary ash discharge stoker, 8 retort, 41 tuyere, 243 sq. ft. projected grate area

Grate surface, sq. ft.	243.2
Fuel-burning equipment—Taylor underfeed 8 retort, 41 tuyeres	
Fuel	Indiana Fourth vein coal

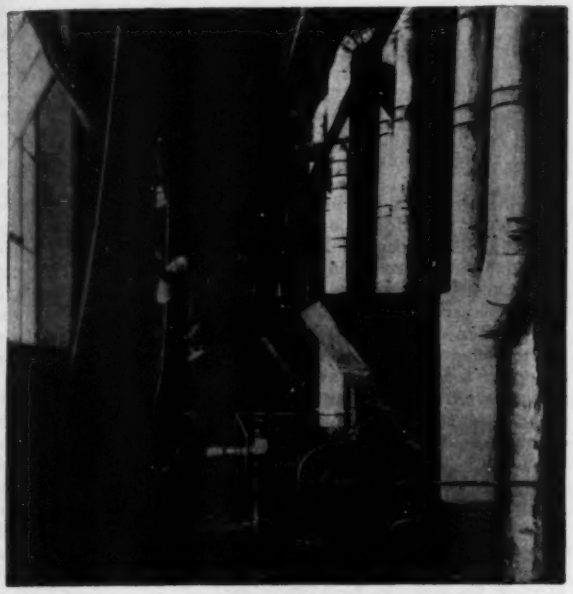




Draft	Forced and induced
Volume of combustion space, cu. ft	3,600
Furnace volume per sq. ft. boiler ht. surf. cu. ft.	0.456

FUEL AND GAS ANALYSIS

	Per Cent As Fired	Per Cent Dry
Fuel Proximate Analysis:		
Volatile matter	32.50	36.97
Fixed Carbon	46.03	52.36
Ash	9.38	10.67
Moisture	12.08	.....
	100.00%	100.00%
Sulphur	1.57	1.79
Heat Value, B.t.u. per lb., as fired		11,343
Heat Value, B.t.u. per lb., dry		12,901
Size of coal as fired	1¼ in. fourth vein Indiana scr.	
Fuel Ultimate Analysis:		
Moisture	12.08	.....
Carbon	64.38	73.22
Hydrogen	3.93	4.47
Oxygen	7.40	8.42



Firing aisle showing stoker fronts—Note stoker hoppers, weigh larry with Richarson scale and circulating tubes and headers for water walls

Nitrogen	1.26	1.43
Sulphur	1.57	1.79
Ash	9.83	10.67
	100.00	100.00

Gas Analysis:	
Furnace CO_2, per cent	13.4
Boiler outlet, CO_2, per cent	12.7
Air-heater outlet, CO_2, per cent	11.4
	As Fired
Dry gas per lb. fuel, boiler outlet	12..86
Dry gas per lb. fuel, air heater outlet	13.67
Dry gas per lb. fuel, theoretical	8.91

REFUSE

Refuse, per cent, of fuel, as fired	8.40
Percentage of combustible in refuse	7.23

EVAPORATION

Actual evap. per lb. fuel, as fired, dry, lb.	9.297
Equiv. evap. per lb. fuel, as fired, lb.	10.137
Equiv. evap. per lb. dry fuel, lb.	11.053
Equiv. evap. per sq. ft. ht. surf. per hr., lb.	6.75
Percentage rating	198.4

TEMPERATURES

Steam temperature, deg. F.	446
Superheat, deg. F.	75
Air surrounding boiler, deg. F.	83
Air entering air heater, deg. F.	83
Air leaving air heater, deg. F.	236
Air for combustion, deg. F.	231
Gases leaving boiler, deg. F.	623
Gases leaving economizer, deg. F.	455
Gases leaving air heater, deg. F.	350
Feed water entering econ., deg. F.	211
Fuel, deg. F.	70

HOURLY QUANTITIES

Duration of test, hr.	48
Fuel as fired, per hr., lb.	6,890
Dry Fuel, per hour, lb.	6,058
Fuel as fired per sq. ft. of grate, per hr., lb.	28.3
Fuel as fired per retort per hr., lb.	861
Dry fuel per sq. ft. of grate, per hr., lb.	24.9
Dry fuel per retort per hr., lb.	757
B.t.u. released per cu. ft. furn. vol. per hr.	21,709
Refuse per hr., lb.	578
Actual water per lb., lb.	64,080
Factor of evaporation	1,090
Equiv. evap. per hr., lb.	69,847

PRESSURES & DRAFTS

Steam pressure superheated outlet, lb. gage	161.0
Air press, ashpit zone, in. of water	1.33
Draft in furnace, in.	0.10
Draft at boiler outlet, in.	0.43
Draft at economizer outlet, in.	1.40
Draft at air heater outlet, in.	2.50

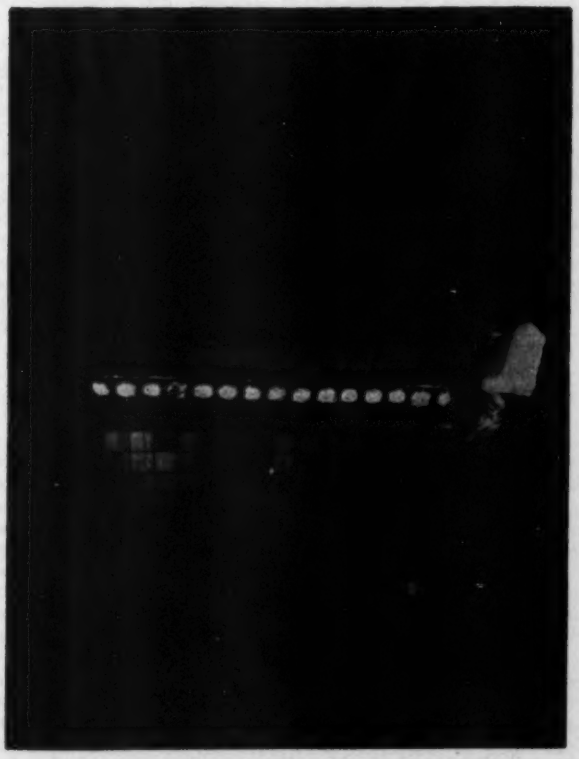
EFFICIENCY

Eff. of boiler, superheater, furnace, grate and air heater, per cent	86.78
Comp. eff. boiler, superheater, furnace and grate (No air heater) per cent	75.48

HEAT BALANCE

	B.t.u.	Per Cent
Heat absorbed by water and steam in boiler, superheater, economizer and air heater	9,830	86.6
Heat loss due to moisture in coal	142	1.25
Heat loss due to water from comb. of hyd.	318	2.80
Heat loss due to dry chimney gases	775	6.83
Heat loss due to unconsumed combustible in refuse	118	1.04
Heat loss due to unconsumed hydrogen and hydro-carbons, radiation, and unaccounted for	160	1.48
		100.00

Cost of fuel per ton f.o.b. plant	$ 3.13
Cost of fuel to evap. 1,000 lb. of steam feed at 212 deg. F., as fired, cents	15.44

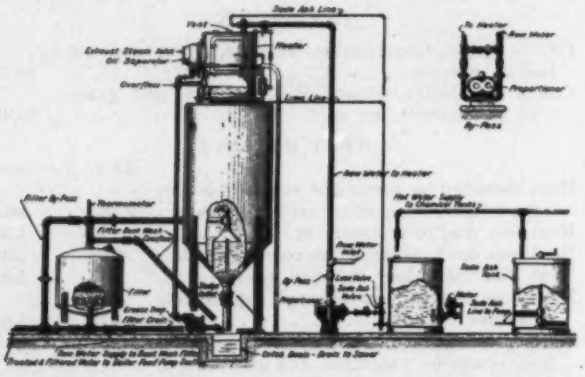


Interior of one of the Casey-Hedges furnaces showing rear and side wall cooling—upper side water wall tubes uncovered, lower side water wall tubes and rear water wall covered with cast iron armor blocks

A careful study of the chart will reveal all data of importance relative to the test. It will be noted that the boiler was operated at 198.4 per cent of rating, that an over-all efficiency of 86.78 per cent was obtained, and that the cost of fuel to evaporate 1,000 pounds of steam feed at 212° Fahr., as fired, cost 15.44 cents.

The Taylor stoker installation on the Badenhausen boiler was placed in operation about January 1, 1928 and the results for that year of operation have been summarized in the accompanying graphic chart.

In this chart are graphically illustrated such data as would be of fundamental interest to production executives in the pulp and paper industry. Each curve should be studied carefully, first by itself, and then in relation to the other curves of the chart.



Elevation sketch of Vater hot process water softening installation

It will be noted that the maximum efficiency of 88 per cent was obtained during September 1928, and that the minimum efficiency was recorded as of January and February—the first two months of operation, that the boiler operated at a maximum rating of 270 per cent during January and a minimum rating of 190 per cent during July. July is also indicated as the month in which the least amount of steam was produced, the maximum being reached during the colder weather due to additional head requirements. More coal is also shown as being consumed during the colder months with the minimum consumption during July. The maximum production, however, was during August, when the coal consumption per ton of paper reached the low figure of 1,593 pounds. This figure is reported to be the lowest on record for strawboard production. The dropping off of all curves with only two exceptions during the month of December was attributed to the use of coal that was of inferior quality. The consumption of coal, however, during this month approximated only 2,000 pounds per ton of board.

Continuing the program of boiler room modernization caused the removal of the four remaining Sterling type boilers. Two 500 hp. multi-drum bent tube Casey Hedges boilers were installed in their place. Each of these boilers was equipped with a motor driven 4-retort 33-tuyere Taylor stoker with clinker grinder. Taylor water wall and water screen, Elesco superheater, Diamond valve-in-head soot blower, Edwards boiler return valves, Crosby safety valves, Hayes multipointer draft gage, Bailey integrating flowmeter, Buffalo Forge Co. forced draft fan driven through G. E. motor and Terry turbine combination and a B. F. Sturtevant induced draft fan, Copes boiler feed water regulator and Reliance water columns. A Ljungstrom regenerative type air preheater with 26,700 square feet of surface was installed to serve both boilers. Green fire brick is the refractory used in conjunction with Bernitz carborundum block in the clinker pit. A Moore multistage pump driven through Moore steam turbine was installed for boiler feed water purposes. This installation together with a Cameron three stage boiler feed pump, G. E. turbine driven, previously mentioned, supplies the boiler feed water for either one of the boiler units and can be used interchangeably.

Water for use in the three boilers is softened by means of a Vater hot process water softener. This equipment was supplied by the Power Plant Specialty Co. of Chicago. The softener works in conjunction with a Cochrane open deaerating feed water heater. The Cochrane feed water heater also acts as a reservoir for condensate returns from the dryers of the paper machines and from the heating system. Temperature within the Cochrane deaerating heater is maintained at 212° Fahr.

In the operation of the boiler house, 4th and 5th vein Indiana coal containing approximately 11,000 B.t.u., 10 per cent ash, 10 per cent moisture, and 2 per cent sulphur is delivered on a railroad-siding adjoining the plant. This coal is unloaded by dumping from the cars upon a belt conveyor which delivers it to a belt elevator. The elevator in turn discharges the coal into a tile silo. The silo has a capacity of 600 tons and act as a storage reservoir for the coal as well as a hopper for a 2-ton traveling weigh larry equipped with a Richardson automatic scale. The weigh larry delivers the coal to the stoker hoppers of each of the three boilers from which it is delivered into its respective furnace. Preheated air at 300°-350° Fahr. is delivered to each furnace and aids in the combustion of this low grade fuel. The ashes discharged from the clinker breakers drop into the ash pits and are then conveyed by means of a drag link chain conveyor to a skip hoist. The skip hoist elevates the ashes to an overhead bunker from which they may be discharged by gravity into a truck for removal from the plant.

Until a short time ago, the 1,000 hp. Badenhausen boiler equipped with the Taylor underfeed stoker met the entire steam demands of the plant. It was recently shut down for overhauling, and the smaller units placed into operation.

The operation of the Badenhausen boiler since about January 1, 1928 has resulted in a saving of approximately $40,000 per year in coal over the cost of coal for the years 1925, 1926 and 1927.

The smaller boilers, the Multipass Casey Hedges units, are now in operation and the results have been very gratifying. These boilers are considerably different from the Badenhausen outfit, in that the Badenhausen is completely water walled on four sides, while the Casey Hedges units are enclosed with brick walls with the exception of limited water walls on the side along the stoker and a water wall in the rear. The insulation is placed on the outside of the brick walls. The hotter sections of the side walls of the boiler furnace and top are covered with Johns-Manville Supersex insulation with Banner Rock mineral wool in the rear side walls and rear walls.

The operating pressure was raised from 165 lb. to 265 lb. with 150 deg. of superheat in February. The entire power plant was originally designed for this pressure.

These new boilers have been maintaining a daily operating efficiency of 85 per cent, using fifth vein Indiana coal—11.300 B.t.u., 2 per cent sulphur, 10 per cent ash, 16 per cent moisture, as fired.

Turbine Room

Previous to 1924, several non-condensing Corliss engines were used for driving the mill. During the year this equipment was removed, and a G. E. 1,250 kw., 440-volt, 60 cycle, 3 phase turbine generator was installed. The turbine generator operated condensing and extracted at 20 pounds pressure. This unit for a time carried the entire electrical load of the mill, but with increasing demand it was found too small.

About five years ago, a second G. E. turbine generator, specially designed for paper mill service was installed. The unit had a capacity of 2,000 kw., bled at 50 pounds and 25 pounds, and exhausted into a Worthington condenser.

Since this turbine generator unit was installed, all steam for cooking is obtained from the 50 lb. bleeder line, while the 25 lb. steam is used for drying of the paper and for heating purposes throughout the mill. At the same time the generator supplies all electrical energy required by the plant.

Within the turbine room are also installed G. E. flowmeters for measuring steam to rotaries and to the paper machines, a Cochrane flowmeter for measuring water flow to the boilers, a G. E. direct current generating set for supplying cur-

rent to the paper machine motors, a G. E. switchboard with ammeters for each department, a kilowatt meter for the entire mill, and a Terrill voltage regulator. The turbine room immediately adjoins one end of the boiler house, and permits ready communication between them.

Credit for the successful development of the new boiler plant, and for the savings effected is due H. G. Funsett, Mill Mgr.; J. A. Drogue, Chief Engineer; and George E. Myers, Cost Engineer. Mr. Funsett has also been ably assisted in his work by E. A. Weaver, Office Manager, and by Ora Carmin and Guy Smith of the production department.

View of Current Conditions and Business Forecast

By SIDNEY L. WILSON

President, American Writing Paper Company, Inc.

WE have just completed six months of 1930 business. In dealing with different commodities we find experiences and results have been tempered with the conditions applying to our particular commodity, and each of us could tell a different story and perhaps advance good reasons for those differences.

During the six months' period, I have tried to analyze causes and effects, and have developed some facts that are startling because from them it becomes apparent that these facts are either not known or, if known, are not being applied.

Let us first consider raw material and labor costs. The following are the records of our own company which can safely be applied to the entire paper industry.

	Index Figures	
	July 1, 1914	July 1, 1930
Wood Pulp	100	146
Rags	100	175
Shavings	100	145
Supplies	100	153
Chemicals	100	150
Weighted Average— All Materials	100	154
Labor	100	232
Weighted Average— Labor and Materials ...	100	170

The above index figures are computed from prices for current orders, and are lower than those covering contract purchases. In addition to these increased costs of raw materials and labor, a federal income tax has been established, and state, county and city taxes have about doubled.

Dun's index number for general commodity prices at this date is about 175 as compared with 100 in 1914.

Now let us take newsprint. In 1914 it was selling for $2.75 to $5.00 per cwt. Compare that with present day price of 3c to 3¼c and you will see it is out of proportion to either Dun's commodity index figure of 175 or to the index cost of 170 for materials and labor for the paper industry. It is necessary, however, in making this comparison to take into consideration the lower cost resulting from wider and faster running machinery, but making due allowances for those lower cost factors, the present price of newsprint does not harmonize with the present net cost and certainly should be sold at higher than the prevailing prices. The present low prices are doubtless due to competitive conditions, to overcapacity and overproduction. With an overcapacity of more than 20 per cent, with the overproduction and no market for the excess, with some mills attempting to run its equipment continuously, there can be no hope for stabilized production, consumption or for adequate return to the manufacturer.

Take another case, kraft paper. Apply the present commodity index costs and see where you land. You will find a condition even worse than that of newsprint. Realization of this condition evidently was recognized, and resulted in a recent advance of ¼¢ per lb. This action is certainly to be commended. In 1914 the price was around 4¢ per lb.; today it is around 3½ to 3¾¢ per lb.—actually lower than prewar prices, yet with raw materials and labor decidedly higher.

Take another case, book paper. What justification can there be for the present prevailing prices for book papers in the face of the present higher costs for materials and labor?

Take another case, boxboards. You have the same sad story.

And yet another, sulphite bonds. Apply the same process of reasoning and then compare present prices with those prevailing in 1914 and see where you get.

There must be something wrong with merchandising. Service is being offered without charge and merchandise is being given away. Quality consciousness seems to have been lost along with salesmanship, and the law of the jungle is being applied to the detriment of consumer, middleman and manufacturer.

In a market such as exists to-day, everybody is hit either directly or indirectly. You can't separate the interest of consumer, merchant or manufacturer. What affects one affects all. The consumer wants to make money, so does the merchant and the manufacturer—and each wants both the others to profit through their business relations. It's certainly poor business to sell below cost. It's almost a crime if you keep it up when there are legal preventatives. I sometimes wonder if extreme selfishness is not shown, when one deliberately goes out and tries to get more business than conditions warrant, based on knowledge of overcapacity and consumption. (A better remedy is smaller production, with resulting stabilization.) If we succeed some one not only loses an order, but loses his head as well, and at once determines to get even, with a general demoralization of the market on that particular grade with the usual sympathetic influence upon other grades. What we need is mass stabilization, and less of gross production.

If there was ever a time when we should keep a cool head and apply the rule of reason and apply real business principles, it is now. Because of the fear of what some one may do in the way of recklessly reducing prices, there has been a slowing up in buying—even the hand-to-mouth buying of the past eight years has been curtailed—making the present cost of doing business more burdensome than heretofore. There is no justification for lower prices; on the contrary, any one who has knowledge of the real facts will have to admit that the prices on the grades above referred to should be advanced to prevent continuous losses to the manufacturer. A falling price level is the forerunner of lower production and the consequent slowing up of business.

In my opinion, we shall soon see a change in general conditions. Stock market prices have probably reached the full liquidation point. Most of them are about on the basis of 1928, which prices can be considered as representing fair asset values. The tariff bill has been passed. The protests and threats of reprisals against it are practically spent. There is nothing in the tariff bill to cause concern, especially with the flexible feature. Two-thirds of our imports come in free, and a comparison of the present bill with the two preceding ones will show that both the previous bills contain average higher rates than the new bill.

The agricultural interests have certainly been carefully nursed and should enjoy their "food." Inventories in all lines are low, and replacements will be necessary. Money rates are extremely low and will be taken advantage of as soon as that bugaboo "fear" can be eliminated from the public mind, and unemployment conditions will continue to improve. Foreign business conditions are not dissimilar to our own; but with the disturbing international and domestic problems practically straightened out, we should soon start out on a long era of prosperity.

Lukens Enters New Field

Announcement is made by Robert W. Wolcott, president of the Lukens Steel Company, Coatesville, Pa., of the entry of this company into the field of supplying welded steel construction to the manufacturers of machinery and equipment. Research and development work in this connection has been going forward for several months and approximately 50,000 square feet of manufacturing space has been provided at the Coatesville Plant for this activity.

Operations in this field will be carried on through a subsidiary company known as Lukenweld Incorporated, which for the present will utilize some of the manufacturing facilities of the parent company.

Mr. Wolcott states that rapidly increasing demand on the part of machinery and equipment buyers for welded steel construction is responsible for the new development. An extensive program of development and research work has been laid out to assure the safety and economy of welded steel design. They are prepared to furnish engineering assistance to users of this class of construction through a development and research division.

The new company has 24 operators working at the present time and expects to have 50 in production within the next 60 days.

G. D. Spackman is president of Lukenweld Incorporated.

Link-Belt Patents Promal

A new line of cast chains showing remarkable strength and durability in comparison with malleable chains has been placed on the market by Link-Belt Company, Indianapolis. These chains are sold under the registered trade name of Promal.

They are the result of extended research to provide longer life for drive and conveyor chains operating under heavy loads or abrasive conditions. Experimentation with cast chain metals, started about four years ago, led to the discovery of a new method of processing malleable iron which so altered its physical characteristics as to make it a distinctly new metal. This fact was recognized by giving it the distinctive name of Promal.

Compared with malleable iron, Promal has an average yield point of 45,000 lbs. as against 36,000 lbs.; an average ultimate strength of 65,000 lbs. as against 54,000 lbs.; an average elongation of 14 per cent against 18 per cent; and a Brinell hardness of 170-190 as against 110-130. Compared with mild cast steel, annealed, Promal has an average yield point of 45,000 lbs. as against 34,000 lbs.; an average ultimate strength of 65,000 lbs. as against 60,000 lbs.; an average elongation of 14 per cent as against 26 per cent; and a Brinell hardness of 170-190 as against 120-140.

Promal thus has to a high degree the qualities desirable in sprocket chain material; great toughness to resist extreme tension without permanent stretch; high strength in proportion to weight and size; and hardness that affords great resistance to abrasive wear. The combination of these characteristics in the new metal gives chains made of it their surprising durability.

The Worthington Multi-V-Drive

The Worthington Pump & Machinery Corporation, Harrison, N. J., has recently on the market placed the Multi-V-Drive. Developed in conjunction with the Goodyear Tire and Rubber Company after months of study and experimentation, this drive consists of a number of endless molded V-belts running in V-grooved sheaves. It combines a new long-life type of rubberized cord V-belt, impervious to dust and moisture, with an improved V-grooved sheave.

The Goodyear Emerald Cord Belts used in the Worthington Multi-V-Drive combine, in the correct ratio, high power capacity, long flexing life, low stretch and accurate cross-section. The load-carrying members are high-grade cotton cords arranged in parallel lines and concentrated about the neutral axis. The rubber is of the highest quality and each belt in the Multi-V-Drive takes an equal share of the transmitted load.

Each sheave is carefully grooved, machined and finished so that the grooves present a smooth surface on which the belts run. The wedging action between the belts and the grooves results in a slipless, powerful grip which compensates for, but differs from, initial belt tension in a flat belt drive.

The smooth-grooved construction of this drive, together with the fact that there is an exact mathematical relationship between the grooves and the molded shape of the V-belts, results in an effective conformity of belt to sheave which assures maximum power transmission efficiency. The combination gives a positive grip, without binding or backlash, which actually transmits about 99 per cent of the applied power at high speed ratios, over short centers without idlers.

The Multi-V-Drive is said to be the most dependable type of drive yet devised. Where it is used there can be no sudden breakdowns as each application is so engineered that, should one of the belts be ruptured, the remaining belts will carry the load until replacement is made.

Among the many advantages claimed for this drive are high efficiency; long life; negligible maintenance; quiet operation; neatness; small floor space; constant speed; elimination of idlers, lubrication and belt dressings; higher speed ratios; and freedom from breakdowns.

An Interview with the Inventor of the Wagner Furnace

On his return recently from a business trip to Scandinavia and the British Isles, C. L. Wagner, inventor of the Wagner furnace for the recovery of alkali from pulp liquors, was seen by a representative of THE PAPER INDUSTRY who asked him for some particulars of his trip and at the same time to mention some of the outstanding features of the new installations of the Wagner furnace which the J. O. Ross Engineering Corporation, with which he is connected, was making in the United States. Mr. Wagner said:

"On the trip abroad, which was taken to introduce Wagner furnaces, many mills in Sweden, England and Scotland were visited. The pulp mill practice was carefully studied and it is gratifying to note that large plant investments for the purpose of securing economies, were very general—also quality of product rated higher than quantity. Very careful technical work is evident in design and operation, though natural conservatism has held them back in the adoption of more modernized apparatus, especially where this is not of national origin. We hope to have several Wagner units in operation there in the near future.

"In the sulphite mills one very general practice was noted having a direct bearing on the stream pollution here and which the writer has advocated as being necessary to any success in eliminating stream pollution. I shall have more to say about this at a later date.

"The progress of the Wagner furnace in the United States has been very encouraging. Since the installation at the new mills of the Union Bag and Paper Corporation, at Tacoma, Wash., which has been a revelation to the industry, a number of installations have been made, that of the Brown Paper Mill Company at Monroe, La., of eight furnaces being now nearly ready to operate.

"At the Mead Straw Pulp Company, Chillicothe, Ohio, two units were installed for soda liquors and are now operating very satisfactorily. 'Dracco' bag filters were installed to clear the furnace gases and as far as can be ascertained, are removing all traces of soda. This is the first installation of this kind and probably will be extended to sulphate furnaces. Filters had previously been tried on old units but would not operate because of incomplete combustion.

"Other purchasers of units are The National Paper Products Company, Port Townsend, Wash.; Bogalusa Paper Company, Bogalusa, La.; The Brown Corporation, LaTuque, Que."

Andrew Muirhead

Andrew Muirhead, a director of the Robert Gair Company, passed away June 20, at Haverhill, Mass., at the age of fifty-one.

Mr. Muirhead was a native of Glasgow, Scotland, having come to this country with his parents as a small boy. He served for twenty-two years as superintendent of the Haverhill Boxboard Company, which later became one of the units of the Robert Gair Company. He was a man of upright character and friendly disposition, and to know him casually was to like him.

Beating To Make Paper[1]

By ARTHUR B. GREEN
Cumberland Mills, Me.

SIGNIFICANT it is that throughout all the growth of science applied to making paper we have allowed our beating equipment to remain essentially unchanged. Beaters are in principle just what they were a couple of decades before our country became a nation. Nor can it be said that we are to-day very much nearer to the point of designing beaters with thorough engineering. No one has gathered the data.

A fair chronicle of beating would have to contain a long succession of devices, each intended to supplant the beater in whole or in part, each finally disappearing in favor of the old hollander. From that succession only one is notably retained, the jordan, dating roughly from Civil War times, and instead of displacing the hollander, the jordan has merely augmented it. So in beating we have to-day larger size, somewhat better materials, and better application of power, but nothing new in principle.

Expertness of the Early Beaterman

Along with this doubtful advance in the matter of equipment and its design, we have an even less favorable picture in the field of management. When fibers were long and tonnages limited, beatermen were chosen and trained with care. To be promoted to a position of responsibility a man had to possess a painstaking practical knowledge of beating, a strong if not always clear perception linking the art of beating with the paper to be made and sold. It was quite the fashion for owners to know their beaters and their beatermen, even to have served their time in the beater room. No part of the mill got more attention. But that fashion has been going out. Short fibers, mounting daily tonnages, greater size and complexity in organization, have been resulting in delegation of the beating job to men of less and less intelligence, until now in many mills this most important work is in the hands of the lowest paid help, unable even to speak our language, unlikely ever to become alive to the interests of the company, the possibilities of their job, or its meaning as a step in making paper. Not only that, but this type of men get along frequently without so much as seeing the leaders whose responsibility it is to control the quality of the output and to make the enterprise show profit.

The Test of a Good Beating Engine

Two years ago in a Western mill they felt the lack of beater capacity. They were considering various types of beaters offered for sale by a succession of sales representatives, the assumption being that when beater capacity is lacking of course the remedy is more beaters. One type of open tub beater attracted special attention. I was asked for my opinion about that particular beater. I found in the printed matter an impressive array of tabulated figures showing that this beater would circulate very thick stock with a low expenditure of power, but I found nothing about the properties of the paper, the character of the stock, or the relation of this beater to either of these. Whatever merits the beater may have had, there was no proof, so if its purchase were to be made intelligently someone would have to go through a series of tests with it.

But this new beater was not alone in that respect. Tests to show what the existing beaters would do, or could be made to do, with respect to the special characteristics in the paper that this mill was aiming for had never been made. Beater men were being left pretty much to themselves, going on from day to day without precise instructions, and the results were being accepted as if that were proof as to beater capacity or the lack of it. Quite possibly, if the facts had been first ascertained, a good deal of undeveloped capacity might have been found in the beaters already running, and the expected purchase of new ones could have been either avoided or materially reduced. In either case some definite guidance would have been in hand for using both the old and the new to far greater advantage.

To the man who had asked me, all this was purely academic. Into the file it went unread. Saved was the expenditure of from $5,000 to $10,000 for facts essential to the case; spent is now upward of $250,000 for new beating equipment; added to the practical knowledge of his organization as to the true use of either the old or the new is nothing.

Savings Through Control of Density

In number of beaters he is adding about 33 per cent. In tub capacity he is adding more than that. A mere preliminary study of his beater-room conditions showed that between one charge and another in similar beaters running on the same order for the same paper machine there was a variance in density from 4.41 per cent to 5.43 per cent on one shift, and from 4.38 per cent to 5.52 per cent on another shift. In the first case he had an error of 23 per cent and in the second an error of 29 per cent, in the amount of air-dry substance he put into the beater to make paper of. His theory regarding density was, the higher the better; therefore if he should get on top of the density factor only, and bring all of his beaters up to the highest that any of them showed, he would at once save himself about one beater in every six. That in turn would have amounted to almost half the outlay he had actually made, and would have saved him something like $100,000 capital investment.

Getting control of beater densities, thus saving this $100,000 investment, would have been only the first elementary step in any real program. In knowing accurately how to handle the beater roll to obtain exactly the paper desired, in the shortest possible time, once the density is regulated, there is as much to be gained. In his case the duration of a run varied from 1¼ to 4¾ hours of roll action. Added to each of these should be ¾ hour dropping and furnishing, making the over-all periods 2 to 5½ hours respectively. Here is a spread of over 100 per cent in time, the equivalent of a like spread in beater capacity. Moreover, there is no reason to suppose that in even the shortest beating period the best use of the roll was made; therefore the chances are that even more advantage than 100 per cent might be obtained if he knew exactly how to handle his beater rolls. With capacity under definite regulation with respect to both material and time, it is altogether likely that he could have saved himself his entire outlay.

Other Benefits

But his benefits would by no means have stopped there. Against a fiber content in the beater that varies 30 per cent, he measures out very carefully the amount of color to add, varying not more than a fraction of 1 per cent there. But the coloring effect is quite as much in proportion to the amount of fiber to be colored as it is to the amount of color used. He is meticulous about one, and careless about the other. Immediately, therefore, he gets his beater density under his thumb, he automatically gets more uniform color. As to size, as to alum, as to mineral loading, the same applies. Four important factors influencing his ability to sell his product and to show a profit are at once radically improved.

And there are still further benefits. Not only would his outlay for new machinery and buildings have been cut, but his continuing expense for added labor, upkeep, power, would have been minimized. He would have placed himself in position to select the better men for his beating, pay them better, obtain from them performance in more strict accord with true and adequate daily instruction. He would be on better terms with them.

Paper is Still "Made in the Beater"

With so large a stake to play for, with so much undone that might be done, how can anyone agree with the remark so often made, that there is not so much in the beating of stock as there used to be? For example, this man we have just been nailing to the cross has no information in his mill showing what is the best speed for his beater rolls. So we could proceed naming one factor after another, mastery of any one of which would be one step nearer to good man-

[1] Read before the Northeastern division of the Superintendents' Association at the summer meeting, June 28, 1930.

agement in the beater room, and one leak stopped in the matter of unnecessary expense. The withdrawal of brains from our beating problem is at once a bad mistake and an opportunity for the man who will first engineer it for himself.

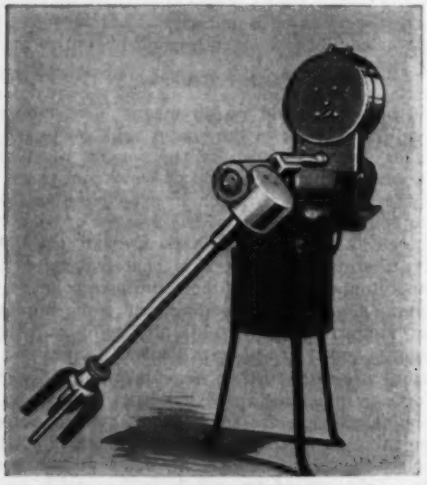
Though a large field of unknowns still remains for research to uncover, enough has been known for many years to enable anyone to engineer his beater-room problem. The immediate requirement is rather to use what is already at hand, bringing beater-room practice up to its present day possibilities. In fact, until experience is more general with the technical means we already have, extended research will have undue trouble tying in with daily practice.

In order to reach real results, there must be ways of measuring the properties of the stock during the beating, independently of the jordan and the paper machine. These measurements must show what is happening in the beater to modify the papermaking characteristics of the stock. What are the papermaking characteristics?

Papermaking Characteristics

Paper, though sold by the pound, is salable because it possesses strength, because it will fold, because it has a surface, because it will take ink, because it retains a color, has thickness, will lie flat, will be opaque, and so on. Various grades combine these things in different proportions. The object of beating is therefore, not to pass a certain number of roll bars over a certain number of bed-plate knives in a minute, nor to circulate around the tub a certain number of pounds of air-dry material a certain number of times in an hour; it is to produce these characteristics in the final product to the desired degree and in the desired proportion. Any measure of beating to be valid must show what is expended against what is accomplished.

The literature has kept us posted in ways to measure what is expended. But the other part of the ratio is just as well in hand. To find out what is accomplished, that is, how the papermaking characteristics are being developed, you take out small samples at regular intervals. From these you make tests of density, freeness, bursting strength, folding strength, tearing strength, tensile strength, stretch, degree

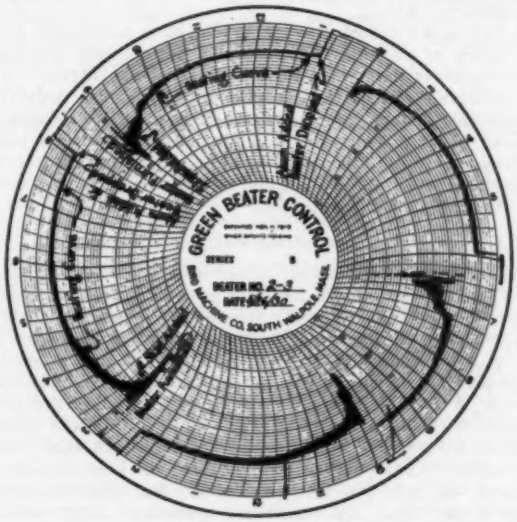


The Green Beating Control Apparatus
All readings for density and for beating are taken when the impeller is at a standard fixed depth

of sizing, shrinkage, bulk, porosity, opacity, and at the same time make note of factors about the beater, such as height of roll above bed-plate, speed of roll, pressure of roll, power, speed of circulation, depth of stock in tub, change in surface slope, change in frictional resistances within the stock. This information well rounded out and put on a chart shows clearly how and to what extent the work of the beater is enhancing those characteristics of final paper which are desired for the grade in mind. There are here listed about as many ways of measuring the stock before it reaches the paper machine as we have of measuring the paper we sell. Therefore, up to the limit of our ability thus far to describe and specify the paper we buy and sell, we have the means already at hand for really engineering the operation of our beaters.

Duplicating Results

Practically we have a still further advantage in that once we have determined what beating we need, we can duplicate



Green beater control chart

it. Here the same simple and direct line of reasoning holds once more. Regarding the beater as a tool for producing papermaking characteristics, we are interested, not in the way the roll is set, not in the power consumed; but we are interested solely in the effect the beater is producing. If we have made a study such as we have just described, we know what characteristics we are after, and on the average how to get them with the least expense. We know that we cannot duplicate the results by attending to the expense side of the beating. We can have the roll set the same; or the power the same; but unless we positively govern the thickness of our furnish, and thereafter govern the effect we are producing, we are subject to all the variations in the fiber as it comes up to the beater. In short, for purposes of control, we measure not what we do to the beater, but what the beater does to the stock. We take our information not from the beater, but from the fiber.

Measurement of Viscosity

It required a long series of investigations and practical runs to establish the method of getting the information from the fiber while it is undergoing beating. Since that was done 14 years ago the method has been in use and under practical mill conditions, including every kind of pulp, and it has always checked. This method is based on the law that connects the changes which occur in the frictional resistances within the stock with the development of papermaking characteristics. If you measure these frictional resistances, called for brevity "viscosity," you develop a curve beginning when the beating starts and ending when the beater is dropped. Along with that curve there would be, if you obtained them, curves to represent the development of bursting strength, folding strength, sizing, bulk, shrinkage, and so on. The law is that one curve of viscosity measurements corresponds with a very definite group of the other curves showing papermaking characteristics. In other words, if you duplicate the viscosity curve, you also duplicate the character of paper the pulp will make.

POWER

GENERATION - UTILIZATION - MAINTENANCE

By W. S. JOULE

This section turns the searchlight upon power and its allied problems. It shows up big possibilities to save. Opportunities to improve conditions, methods, apparatus will be discovered. Worth while practices suggest new ideas and wider usages of equipment.

Handling Hot-Weather Lubricating Problems

HANDLING a hot bearing in extremely hot weather, under heavy loads, often represents a real dilemma. If the machine is shut down, so that the bearings may be saved, a costly interruption to power supply may occur, or the overload placed upon other equipment may have disastrous results. If the machine is kept in service, an extensive shut-down may be caused, incurring expensive repairs. The big problem for the engineer under such circumstances is, therefore, whether to shut down or not. Both are unthinkable, but the decision must be made.

In some cases, of course, the trouble may be due to the fact that the wrong oil is used. When hot summer temperatures are super-imposed upon higher normal temperatures due to heavy load, the viscosity of the lubricating oil decreases and its lubricating properties decrease, likewise. In some cases a poor oil has been used and has served its purpose without trouble. Directly hot weather arrives, however, the oil may develop acid under the exposure to heat or when mixed with water, to emulsify and increase its viscosity. It is a wise precaution to filter all oil before summer weather arrives. Oils do not wear out mechanically but impurities that enter as fine particles do interfere with lubrication. The filter removes these. There is another objection to emulsification, which is often overlooked, and that is that the emulsion may clog the filter or feed lines and so result in damage to the bearings on account of the failure of the oil supply.

Attention to bearings, the oil supply and the oil before hot weather may save trouble later. As the lubricant serves the two-fold purpose of forming a film between the bearing and the journal and also carrying off the heat, increasing the rate of oil supply is often an important factor in keeping down lubricating temperatures. Where oil rings are used, it is always worth while to see that there is ample oil supply. If anything, it is well to increase it, filtering all oil in use before adding new oil, and then adding more than usual so as to provide a greater reservoir for heat dissipation.

In some cases, especially in cases of emergency, it may be necessary to rig up an oil pump and piping, so that the oil may be cooled by running the piping through a tank of cold water. In one instance it was possible to keep a 5,000 kw. machine in service for four or five hours by packing the pedestal with chunks of ice. In this case, current had flowed from the shaft to the bearing, creating rough spots that resulted in the oil boiling. Adding many gallons of new oil or draining off the old oil, together with the ice pack, enabled the machine to stay in service over the peak load.

In another instance of a hydroelectric plant, serious bearing trouble developed and, ultimately, the trouble was solved by trebling the oil supply by means of a pump while connecting the shaft with the bearing through copper brushes and conductors. The generators were of old design and bearing currents of considerable magnitude existed. The bad condition of the bearings, together with the heavy load, plus the heavy bearing currents, combined to cause trouble. In certain cases the possibility of bearing currents must be taken into consideration, as they not only create heat, but tend to decompose the oil while causing pitting and electrolysis of the journal and bearings.

Ventilating Generators

Cooling electrical equipment may assume a real problem during the hot summer months whereas during the winter no problem presents itself whatsoever. Some of the hydroelectric plants designed a good many years ago gave too little attention to this matter and in consequence a very real problem is introduced each summer. An electrical generator requires from 125 to 150 cu. ft. of air per minute per kilowatt of loss. Unfortunately many station operators have no idea what the kilowatt loss is and they are not able to calculate, therefore, the amount of air required. A rough rule, however, is that should air passing through the machine rise more than 15 to 20 deg. Fahr., then there is need for an increase in air supply. It is usually taken that one kilowatt-hour will raise the temperature of 10,000 cu. ft. of air from 80 to 100 deg. Fahr., equivalent to a rise of 20 deg. Fahr., or 11.1 deg. C. The total losses in the generating room generally equal (Total kv. a. generator capacity) – (total kv. a. generator capacity x generator efficiency).

With the total loss in the generator room known, the total amount of air required for the generator room can then be calculated in cubic feet per minute by this formula:

$$\frac{10{,}000 \times \text{total loss per hr. kw. hr.}}{60}$$

When the above formula is used for calculating the amount of air required in the generator room, the result will be about twice as much air as that ordinarily considered as being required with positive or forced ventilation, because with this method of ventilation a definite amount of air is used, hence a temperature of 16 to 22 deg. C., between ingoing and outgoing air is not excessive.

Much closer attention to ventilation is required of machines insulated with cambric insulation than is the case of machines having mica insulated coils. Modern types of generators for hydroelectric use are designed to give maximum cooling. The frame is usually provided with ventilating holes above the base line, no outlet being provided toward the pit. End shields enclose the end of the rotor and all ventilating air is forced by means of fans on the rotor into the end shields where, under pressure, it ventilates the end winding. Air passing through the core and winding below the base is forced out of the large openings at the feet of the armature frame. The collection of heated air in the pit is thereby prevented and the air being returned to the field is used over and over again. In many cases the field pole provides the fan action, so dispensing with the use of a fan. This class of ventilating machine is usually very quiet running.

For machines requiring a larger amount of coolant, the usual practice is to provide ducts so that fresh air may be taken directly from the outside generator pit. Where the machines are high-speed, they themselves provide sufficient fan action, so that it is only necessary to provide hoods for enclosing the ends of the machine over the pit. Air is drawn directly from the outside, entering both ends of the generator and being forced through the stator and out into the station. Heated air is prevented from re-entering the pit. In some plants where the station is hot, it is well to provide the gener-

ators with sheet metal hoods and ducts so that the hot air may be led to the outside of the plant during the summer while being allowed to circulate in the plant during the cold weather.

With slow-speed machines operating at low peripheral velocities, fans located on the shaft are of little use, and it is then necessary to resort to forced ventilation by the addition of motor-driven fans and air ducts. This type of cooling should be embraced in the station design. Nevertheless, in certain instances the safety of a machine may be safeguarded and its output increased materially by connecting up a motor-driven blower so as to increase the cooling effect. It is very important, of course, that the in-taken air should be as cold as possible so as to accelerate the cooling effect. On low-speed machines the air velocity will range easily anywhere from 300 to 400 ft. per minute, going as high as 1,200 to 1,500 ft. per minute for high-speed machines. Between 125 and 150 cu. ft. per minute per kilowatt loss is required.

Many companies, particularly those located in industrial centers, make it a practice to shut down each generator annually, remove the rotor or rotating field and blow out the stator very thoroughly, cleaning out as much as possible all air ducts through the laminations. The more the air is dust-laden, the more quickly the ventilating ducts will clog up, so interfering with the flow of air, hence the cooling. In many instances a generator will operate hotter and hotter each summer, due to this fact,—a fact which should not be overlooked. Where air is contaminated, special provision should be made, therefore, to guard against dust and dirt through the use of air washers or filters or screens.

Pre-Service Inspection of Boilers

WHERE the boiler water is properly treated, it is possible to operate boilers nowadays anywhere from four to six weeks or even eight weeks without shutting down. When shutting down becomes necessary, it is usually so that the tubes may be cleaned inside and outside for scale, dirt and fly-dust or, that the furnace may be cleaned out, etc. When the unit has been shut down, it is more necessary than ever after operating for such long periods, to inspect each unit carefully for its physical condition, so that anything tending to jeopardize safety of operation, or life and property, may be detected before some accident occurs. That inspection is not always what it should be is shown by the number of times the insurance inspector discovers defects or flaws that have never been discovered by the operating personnel. This shows that boiler inspection is often lax. It emphasizes the fact that too little attention is given to inspection in general.

It may be said truthfully of a boiler that, "if it starts wrong, it stays wrong." In other words, if a boiler goes into service when things are not correct, it will remain incorrect until it shuts down again. Where boilers remain in service anywhere from four to six weeks or more it becomes more necessary than ever to see that they "get started right."

Who is it that makes these inspections at your plant? Is it the men who do the cleaning?

Cleaning is a dirty, uncomfortable, sometimes dangerous, job. Men want to get through with it as soon as they can. It is only human to scamp work—and men will scamp work which they know will not be discovered. In many plants the cleaners do the job and when they are through, the unit is placed back into service. Conditions are allowed to go from bad to worse, without anyone knowing about them. The remedy, of course, is for the chief engineer himself, to make inspections. He is the highest priced man on the job. He is supposed to have the most experience. He carries the most responsibility. He has a moral obligation, therefore, to see that his boilers are in first-class shape, that they may safeguard efficiency as well as not to create a hazard.

Any boiler room of any size should work up a boiler inspection report. Such a report enables conditions which keep repeating to be discovered, so that the cause back of them may be eliminated. An inspection report in black and white tends to make men more careful, because it hangs the responsibility upon them. Where shifts change and even personnel changes, it is very easy for trouble to ensue, due to scale, due to refractories, to go on and persist month after month where different men have to take care of it, whereas a written report showing the trouble, how it was remedied and what it cost to do it will immediately show up conditions that otherwise would keep on without being recognized.

For example, if tube trouble is being encountered, a report will quickly show whether or not it is the same tubes which keep failing. If it is the same tube, there must be a reason and it is not a difficult matter to determine whether it is faulty circulation, scale, oil, flame impingement, or what. A boiler that remains in service for six weeks consumes considerable coal, and a three or four or ten per cent loss amounting to an appreciable tonnage in coal at the end of four to six weeks. Another reason why the reports are so desirable is that the cost of making repairs can be more easily kept so that when the time comes to compare the cost against some promised improvement, the relative investment can be counterbalanced against the relative cost.

A surprisingly large amount of money—in the form of "excess air"—flows through cracks between firing doors and the brickwork, between the openings of a warped firing door, or observation door. These sources of waste can be easily determined before placing a boiler back into service by covering the fuel bed with the amount of fuel ordinarily used, adjusting the installation as if operating under ordinary conditions, only with the damper in the breeching or stack wide open. A man in the furnace can quickly locate these various sources of leakage, so that they may be plugged up. While there are a number of simple tests which can be made outside the furnace, there are many sorts of leaks which cannot be located from the outside. They can be determined, however, from the inside during a final inspection before placing the unit back into service. With all doors closed and the breeching damper wide open, an inspector in the furnace with a torch or naked flame can "explore" the furnace chamber. Under bad conditions, the incoming air or air infiltration may blow out the torch. These places should be marked with chalk and should be closed before the unit goes back into service. Any leaks repaired in this way will pay many times over for the trivial matter of locating them.

Some Limitations of Oil Fuel

IT should not be overlooked that oil is subject to very much greater abuse than is coal. If insufficient air is furnished a coal fire, the fire goes out. Oil continues to burn with insufficient air, producing very little heat, however. Oil makes a much denser smoke than coal, unless the air supply is properly co-ordinated to the fuel supply.

Less "excess" air is required with oil than with coal, which means, of course, that closer attention is necessary to prevent excessive waste of heat from this major cause. Oil is frequently extremely clean. In many instances it is outstandingly dirty due to leaks, mishaps, etc.

The fire hazard of oil must always be contended with. Another fact to be remembered is that the investment in oil burning equipment may be relatively high because of storage tanks, oil heaters, circulating pumps, etc. Because oil needs less attention than coal it gets less—and needless wastes creep in. Oil is much easier to burn than coal—and more easily abused and wasted.

Handling Unwieldly Clinker Masses

IT sometimes happens that a clinker crust will build up the full width of the furnace into a mass too unwieldly to handle until broken up. In such instances the clinker can be broken up without disturbing the fuel bed in this manner. Construct a hand lance of sufficient length to pass the full width or length of the furnace.

This lance, of ½ or ¾-inch iron pipe, should be open at one end, the other end being connected to a supply of steam. Insert this lance into the furnace through one of the side doors or wherever it is feasible. Turn on the steam and pass the open end or nozzle over the lump of clinker where it is desired to separate it. The steam will cut the clinker so that it is easily parted along the path taken by the steam.

An executive's judgment is no better than his information.

WISCONSIN

Business Quiet Among the Mills

With the usual summer decline of orders added to an already uncertain demand, conditions among Wisconsin paper mills are more quiet than they have been for a number of years. The industry, in some places, is going through a readjustment to bring defunct plants back into operation. There have been one or two complete shutdowns, and a reduction of working days in some mills. Manufacturers are taking the situation philosophically, however, believing they are among the last to feel business depression, and that the close of the dull summer season will see a pronounced upturn.

In a recent survey of the situation, it was found that writing paper demand was down 8 per cent and wrapping paper 15 per cent. Other lines varied between these two points. Specialty mills, however, were not obliged to curtail their production, since the volume of orders was continuing satisfactory, and some were experiencing an increase over the number of orders on the books as compared to a year ago. There has been less evidence of depression and unemployment in paper mill cities than in other places in the state.

Because of a falling off in orders, the Marinette and Menominee Paper Co. has closed down indefinitely its mill at Menominee, Mich., and has curtailed production at its Marinette mill. The Fox River Paper Co., Appleton, has been operating on a five-day schedule, and closed for one week during the Fourth of July holiday period. Operations have been practically suspended by the Brown Paper Goods Co., Rhinelander, because the company could not maintain a sufficient schedule of orders to keep this plant running as well as another one located in Chicago. Only four employees were retained and there were indications that there would be a complete shutdown within a month if conditions did not improve. A forced shutdown of ten days was in effect at the Escanaba Paper Co., Escanaba, Mich., the last week in June when streams swollen by storms carried away two power dams, one at Boney Falls and the other at Chandler Falls. The mill was flooded, and some damage was done to machinery. A steam plant at Escanaba is being utilized for power while the dams are being rebuilt.

Two Paper Mills Auctioned

Two plants have been sold at auction within the last month, in each case with prospect of early resumption of business. One of these is the Menasha Paper Mills Co., Menasha, known for many years previously as the Island Paper Co. It has been operated for several years as a two-machine straw board mill, and was placed in receivership 16 months ago with J. M. Levin, of Oshkosh, Wis., and E. H. Jaynes, of Cleveland, Ohio, in charge. Market conditions made it impossible to continue operating the mill, except at a loss, and it therefore was shut down and a sheriff's sale ordered by the court.

William Nelson, of Menasha, secretary-treasurer of the company, acquired the plant on a bid of $100 and subject to a mortgage of $50,000. He also is secretary of the Menasha Wooden Ware Co., Menasha. Mr. Nelson did not make his plans known definitely, but said plans were on foot to resume operations shortly.

The second sale was that of the Wisconsin Carton Co., Stevens Point, which failed shortly after organization. The equities in machinery and property, the fixtures, tools, plates, dies, office fixtures, etc., were sold to the Ahdawagham Paper Products Co., a subsidiary of the Consolidated Water Power and Paper Co. The company's bid was $3,900 for the property, and $19,000 to cover liens against the machinery.

This equipment was taken over so the company could expand into the light carton field. Its production previously was confined to heavy paper boxes only. The factory is to be enlarged to take care of this new department, according to Frank Walsh, manager. The company then will manufacture and print cartons for candy and other foodstuffs, counter display boxes, cookie containers and others. All of the carton board will be made at the Consolidated mill.

A New Container Corporation

One new company, the Wisconsin Container Corporation, came into being during the last month. It will be located at Menasha, Wis., taking over a plant formerly occupied by the Neenah Shoe Company. The John Strange Paper Co. and the Menasha Wooden Ware Co. of Menasha, and two other carton companies in other cities joined together to form this company. They did this to take care of orders they are receiving for heavy cardboard cartons, since this business had to be declined because none of the plants was equipped to make this variety and found too little demand to set up their own machinery. Several large factory buildings on the site acquired will be equipped for the manufacture of the heavy cartons and production will be started about September 1. It is believed that additions to the buildings will be needed later. Tax exemption has been granted the company for five years by the City of Menasha. Hugh Strange, manager of the John Strange Paper Co., is president of the new corporation.

L. F. Knickerbocker has been made general superintendent of the Riverside Paper Corporation, Appleton, Wis. He formerly was manager of the International Paper Company's mill at Berlin, N. H.

Although operations have just been started by the newly organized Allan Waste Paper Co., Menasha, the company has found it necessary to enlarge immediately a new two story building just completed. An 80-foot addition has been started and will be rushed to completion. A conveyor also is being installed for the more rapid handling of waste paper.

Plans and specifications are now being prepared in Washington, D. C., for the large new building to be erected at Madison, Wis., for the United States Forest Products laboratory. The government has released $100,000 for immediate use, out of an appropriation of $900,000 authorized for the structure. A complete experimental mill for pulp and paper making is to be established, in addition to other large and extensive facilities for greater research in the uses of wood. The laboratory staff of 200 workers will be doubled when the building is ready for occupancy.

Early history and recent progress of the paper industry in Neenah and Menasha is told in the June issue of the Wisconsin Magazine, which was a special edition devoted to those two cities. It is shown in various articles how the pioneering in Wisconsin was done largely by some of the companies still in existence there, including the Kimberly-Clark Corporation, The George A. Whiting Paper Co., the Gilbert Paper Co. and the John Strange Paper Co. The Bergstrom Paper Co., organized more recently, also is given prominent mention, as well as several other companies.

Paper Institute Host to Editors

The newly organized George W. Mead Paper Institute of Madison, performed its first important function last month when the National Editorial Association had its annual convention at Milwaukee, Wis.

The publishers were conveyed to Madison, where they were guests at a dinner at which the work of the institute was explained. The institute was started by George W. Mead, president of the Consolidated Water Power and Paper Co. in order to help newspapers with their production and business problems. Burt Williams, former newspaper publisher, is secretary of the institute, and John L. Meyer, formerly managing editor of the National Printer-Journalist, is field director. A special edition of the company's house organ, the

Consolidated News, further explains the institute and also is devoted to a history and accomplishments of the National Editorial Association. It is supplied liberally with pictures of the present and past officers.

A. W. Agrell, superintendent of the Patten Paper Co., Ltd., Appleton, was cut and bruised in a recent automobile accident. His view was blinded and his car was ditched.

D. C. Everest, vice-president and general manager of the Marathon Paper Mills Co., Rothschild, and C. B. Clark, president of the Riverside Paper Corporation, Appleton, have been made trustees of Lawrence college, Appleton. Walter Kasten, president of the First Wisconsin National Bank, Milwaukee, also was added to the board. A. F. Tuttle, president of the Tuttle Press Co., resigned, but was made an honorary trustee.

Rather than have his employees wait until affairs of his company, now in receivership, were settled by the court, C. B. Pride, president of the Tomahawk Pulp and Paper Co., Tomahawk, paid them off personally and will carry the claim himself until a settlement is made.

Louis J. Marshall, president of the Marshall Paper Co., Appleton, has given valuable assistance to the department of commerce in arriving at standards of size, thickness and texture of wrapping tape. He has been assisting a committee of the bureau of standards in this work. Mr. Marshall is one of the leading paper wholesalers of the state.

The death of Phillip Nash, who was manager of the Lakeview Paper Co., Neenah, Wis., up to a year ago has been announced. He passed away at Madawaska, Me., after an illness following two major operations. His father, William C. Nash, was a paper manufacturer for many years at Neenah.

◆ MICHIGAN ◆

Cost and Technical Men Meet

The regular monthly meeting of the Joint Association of Cost and Technical Men of the Kalamazoo Valley and surrounding territory was held at the Ot-well-egan Country Club June 26.

In the afternoon twelve of the hardiest and most adept golfers of the club, indulged in that profitable (?) pastime. It is the plan of the club to have a golf tournament this year and the June, July and August sessions will be the qualifying series with the finals being played off in September. A committee consisting of the officers and Frank Brown are to have charge and handicaps are to be figured from the scores in the qualifying series.

After the dinner Frank Brown of the Michigan Paper Co. presented a paper on "Planning and Budgeting Future Sales Costs." Mr. Brown explained that a company in figuring its sales costs should first of all take into consideration the necessary percentage for profit. He further stated that the standard budget profit is 13.51 per cent at which point it would be possible for the manufacturer to provide for adequate dividends and surplus. The minimum profit was placed at 9 per cent as below this, the dividends would be reduced and even at 9 per cent no surplus is provided for.

The discussion on Mr. Brown's paper brought out many interesting points, among them being the cut-throat methods of some companies in taking business with no regard for manufacturing costs nor anything else. The thought that the mills should get together and, through co-operation, limit production, was quite strongly urged to replace the present tendency to fly at each others' throats.

The second speaker was Paul Torre also of the Michigan Paper Co., and gave a paper on "Drying". Mr. Torre spoke from the Engineering standpoint and described the effects of varying numbers of suction boxes, also pressures on Press rolls. He stressed the fact that the cheapest place to remove water was at the presses and gave figures illustrating the monetary saving for 1 per cent less moisture at the first dryer. The paper evoked considerable discussion and the meeting proved a profitable one for those present.

Plainwell Mill to Spend $350,000

A program of general improvements and additions that will require an outlay of approximately $350,000 has been inaugurated by the Michigan Paper Company, Plainwell. The first step will be the erection of a new power plant, the contract for which has been awarded to the O. F. Miller Company, Kalamazoo. This structure will be located immediately adjacent to the company's present power plant and work has already started on it.

The building will be of high grade construction throughout. It will have a structural steel frame, hollow tile walls, concrete floors, and cement tile roof. The dimensions will be approximately 50 by 108 feet. It will be 70 feet to the top of the coping.

This structure is planned to accommodate three 600-hp. boilers, with the most approved equipment throughout. It is planned to install two units at once as 1,200 hp. will be ample to meet the load demands of the Plainwell plant. The Michigan Paper Company has of late been doing considerable work changing its power from steam to electricity. This program is to be continued as soon as the new power plant is finished. C. F. Hershfield, Detroit, is in charge of the general engineering. He planned the power plant for the Kalamazoo Vegetable Parchment Company.

Michigan Paper officials announce that the present program is not for the purpose of increasing capacity or output, but to make for greater efficiency in operations and lower costs.

Technologists Hear Interesting Papers

The Paper Technologists Club of Kalamazoo held its monthly meeting July 9 at the Rose Garden Tea Room in Kalamazoo near the Arcadia Brook Golf Course where a number enjoyed a respite from the arduous duties common to the technical staff.

After the dinner a short business session was held during which the advisability of becoming a section of T.A.P.P.I. was discussed.

A paper was presented by E. G. Milham of the Bryant Paper Co. on "The Chemist and Customer Complaints." Mr. Milham spoke from a fund of information gathered over a period of years while living his subject. He feels that the chemist is the man to deal with complaints where the quality of the paper is in question.

E. J. Turner, former chemist and at present purchasing agent of the Paper Makers Chemical Corporation, talked to the club on "Past, Present and Future of Technical Men in the Paper Industry." Mr. Turner has been associated with some of the oldest heads in the technology of paper and gave some amusing incidents of the early difficulties of the paper chemist, contrasting them with the present day. As a final flare, Ernie painted a rather pleasant word picture of the prospects ahead for the concientious and earnest technical man. He left his listeners with a very pleasant sense of superiority and that "sitting on top of the world" feeling.

E. F. Whittington read a paper on "Specially Treated Papers" in which he called attention to a field not common in Kalamazoo. He pointed out how (through special conversion processes) paper is used to displace more expensive materials such as wood, leather and even metals.

This meeting completed the years work in which the raw materials for papermaking have been followed through the complete process of conversion into paper with considerable time being spent on the manufacturing variables affecting the quality of the paper.

The next meeting is to be a social affair with ladies present. The festivities will be held at the summer home of E. F.

Whittington on West Lake, south of Kalamazoo, the night of August 13. Whit has promised the fellows plenty of lake water for swimming and a radio for dancing.

◆ OHIO ◆

Mead Executives and Foremen Hold Meetings

As a result of two dinner meetings held at the Chillicothe Country Club June 23 and 24, foremen and executives from the local plant of the Mead Corporation, as well as operating executives from the several other plants making up the corporation have become more intimately acquainted with the intimate details of the organization of the company and the plans for the future. The policies which are to be persued in the new corporation were thoroughly explained. The steps by which the recent merger were brought about as well as the financial arrangements were also explained.

George H. Mead, president of the Mead Corporation, was present at the meetings and explained in a most lucid manner the plan of organization, management and future plans of the corporation.

President Mead Explains Financing

At the first meeting June 23, 88 foremen and invited guests attended the dinner. On the following evening more than 20 executives and operating heads, representing southern plants which were recently merged with the local company as well as representatives from Dayton again listened to President Mead and Vice-president H. P. Carruth.

Mr. Mead explained the financing used in forming the corporation by saying that of an authorized issue of $15,000,000 bonds, secured by mortgage on the various plants and other assets, $9,500,000 had been sold.

Preceding President Mead's talk to the foremen, Vice-president Carruth complimented the personnel of the local plant on the fine production record made during the past four weeks, as all previous records have been beaten in that time. The prediction was made that new high records would become commonplace before the end of the year.

At the Tuesday evening meeting when executives and operating heads were invited President Mead outlined the operating structure of the Mead corporation and told of future plans. He first set the reasons for the name and said that the word "paper" was omitted because the corporation is making products other than paper and would probably develop in that direction very rapidly in the future. He believed that additional products will soon be developed.

Personnel and Organization

He paid a tribute to the ability of Vice-president H. P. Carruth when he said that the job of perfecting an operating organization was turned over to him. As an evidence of his ability Mr. Mead called attention to the rapid growth and success of the Chillicothe unit of the company.

President Mead announced the set-up as follows: H. P. Carruth, vice-president in charge of operations; Charles E. Van De Carr, as vice-president of the Mead paperboard Corporation is the executive head of the paperboard and extract division; Allen Goldsmith, secretary. He said it had been definitely decided to make Chillicothe the operating headquarters because of its location with reference to other plants and because of the location of the largest unit at this place. The sales offices of the company however will not be located in Chillicothe,

Research is to be an important part of the Mead Corporation, Mr. Mead declared. This work will be centered in Chillicothe, for all plants with certain advance work in research to be carried on in an independently operated laboratory in Dayton. Immediate problems will be brought to Chillicothe to be worked out.

The meetings were continued June 25 when the executives were called into general conferences at the plant. At that time a round table discussion of present problems was had.

The directors of the Mead Paperboard Corporation, a subsidiary corporation met at Dayton on June 26 which ended the conferences of the company.

Miami Supers Hold Monthly Meeting

The meeting of the Miami Valley Division of the American Pulp and Paper Mill Superintendents Association was held Saturday, June 14, at the Hamilton Inn, Franklin, Ohio. There were twenty-five in attendance with Mr. H. T. Randall presiding.

In discussing arrangements for the next meeting, it was decided to convene at Dayton either the first or second Saturday in October, at which time the executive committee members would be entertained. The exact date of the meeting will depend upon the date selected by the executive committee for their sessions.

Mr. Walter L. Glass of the Tolhurst Machine Works, Troy, N. Y., gave a talk on Centrifugals.

Crane Co. Celebrates 75th Anniversary

On July 3, the offices, branches, and warehouses of Crane Company throughout the world were closed that the employees of this company might celebrate the 75th anniversary of its founding. The chief celebration took place in Chicago where approximately 1,000 veteran employees and officials of the company and their families gathered to help nearly 10,000 employees in Chicago and their families and friends observe the day.

It was just 75 years ago on July 4, that a young mechanic, R. T. Crane, went into business for himself in a little brass and bell foundry in a corner of his uncle's lumber yard in Chicago, and the business he founded has grown into a world-wide organization, manufacturing and distributing plumbing and heating materials and industrial valves and fittings.

In many of its details, the story of the beginning of Crane Co. is one of the characteristic romances of American business. In others, it is unique.

It is characteristic in that it began with extreme simplicity, with no outward sign of the future growth that it was destined to have; in the fact that it evolved slowly at first, then with increasing rapidity; in the fact that its success was founded not only on the ability of the founder but on his clear-sightedness in gathering about him other men of great talent and thus building an organization of loyal and able assistants.

It is unique in the simple creed that he hung up above his workbench in the beginning and clung to with unshakable tenacity through good times and bad afterward. This creed read:

"I am resolved to conduct my business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just toward employees; and to put my whole mind on the business."

This creed was not simply a set of words. It was a statement of faith in which the young business man believed implicitly, and which became the immutable Medes and Persians law by which every subsequent policy of the company has been tested to this day.

Working with contractors, architects, plumbers, engineers, and others in the plumbing, heating, and piping fields, it has helped to raise the standard of health in the United States, to put comfort in reach of humble homes, to give greater beauty to homes small and large.

Though plumbing improvements are perhaps the best known contribution of Crane Co. to modern life, an even greater one lies virtually hidden from all but engineers and industrialists. This is the development of valves and fittings to hold enormous pressures and what is known in industry as superheat. What this means is not easy to put into words for the layman. But briefly, it means that electrical power can be produced and delivered in homes at a price that everyone can afford to pay. It means that this same electrical energy can be economically produced to haul the public to work. It means that factories can cut production

costs and so sell you better goods at less cost. It means that by the cracking process, twice as much gasoline can be extracted from crude oil as was possible a few years ago.

It means much more. The full tale of Crane contributions to many industries would be endless. For Crane valves and fittings, and the research that R. T. Crane started in metallurgy and piping metals, have affected virtually every industrial process of the present day.

It is significant that this growth and these accomplishments did not all come in a day. Many of the most important ones did not come even in the life of the founder, though he lived to see his company successful, his name among those of the leaders of American business, and his organization so solidly built that it could carry on his policies and develop his ideas almost as though he were still present to direct.

Goslin-Birmingham Mfg. Co. Now Affiliated with Whiting Corporation

The Goslin-Birmingham Mfg. Co. Birmingham, Ala., successor to the old Birmingham Machine & Foundry Co. and the Joubert & Goslin Machine & Foundry Co., both well-known firms with many years of manufacturing experience, has just become affiliated with the Whiting Corporation, Harvey, Illinois.

Whiting Corporation, with its subsidiaries (Swenson Evaporator Co., Grindle Fuel Equipment Co. and Joseph Harrington Co.) is the pioneer manufacturer of foundry equipment and also one of the leading crane builders; other Whiting lines include special equipment for railroad shops, sepecial machinery of all kinds, evaporators and chemical machinery for the process industries, pulverized coal equipment and mechanical stokers.

The affiliation of the two companies represents an unusual combination of manufacturing facilities and personnel, which should be of material benefit in extending the Whiting lines in the South. The two plants of the Goslin-Birmingham Co. are unequalled for capacity and completeness of equipment anywhere in the South. The quality of castings produced is likewise without an equal. This pooling of operations will effect economies in operating cost which will greatly help to stimulate the sale of the various lines represented.

Of special significance is the research program begun by Whiting several years back. Through its subsidiary, the Whiting-Swenson Co. of Ann Arbor, Mich., the process industries have a rare opportunity to secure valuable research service on any problems pertaining to the transfer of heat evaporation, crystallization, and the recovery of wastes. Very definite benefits have resulted from this research work, including the development of new and improved equipment that is saving their industries thousands of dollars each year.

New Catalogues, Books and Publications

H. W. Caldwell & Sons Co., Chicago, Ill.—Catlogue No. 1191, illustrating and describing this company's line of screw conveyor drives has just been published. The 32 pages of this book are devoted to illustrations of the drives, typical illustrations of the equipment, and engineering data enabling one to select, without confusion, the most efficient and economical drive for the individual purpose.

Eastwood Wire Corporation, Belleville, N. J.—This company is circulating among its friends and customers a limited edition of a beautifully illuminated parchment which bears the title, "In Praise of Paper." The title, initials and colophon are done in red, black and gold, and the whole is reminiscent of the parchment used in ancient missals. It is announced that a series of these parchments will be prepared, each devoted to some special aspect of paper manufacture.

Griscom-Russell Co., New York City—Bulletin 361 covers this company's line of evaporators and contains much helpful information for engineers and executives of industrial plants. There is a discussion of the functions, applications and advantages of evaporators for distilling boiler-feed make-up water. Also is given in detail the history of evaporators, the benefits of distilled boiler-feed and the different types of evaporator systems that have been found most advantageous for operating conditions. There are many illustrations including photographs of installations and G-R Evaporator designs, together with diagrams showing how evaporators may be associated with other plant apparatus for efficient operation. Copies upon request.

P. C. Kullman & Co., 110 Nassau St., New York City. This company has compiled a copyright folder entitled "The 92 Elements," which gives the numbers of the elements in the periodic system, their names, symbols, atomic weights, melting points and years of discovery. The folder will prove a convenience for laboratory workers and may be had gratis upon request.

Leeds & Northrup Company, Philadelphia, Pa.—In L & N Notebook No. 3 entitled "Notes on Hydrogen Ion Measurements" this company has issued a useful compendium of information concerning hydrogen ion measurements. It is a book of forty-eight pages which describes in simple terms the meaning of hydrogen ion concentration and pH value. By means of illustrations in the text electrometric methods of measuring the concentration of hydrogen ion are interestingly depicted. Hydrogen ion measurements are now a routine proceedure in many pulp and paper mill laboratories and the L & N Notebook No. 3 is likely to prove a useful guide. The compilers of the pamphlet have succeeded in presenting the subject in a manner and in terms which are comprehensible to one who is not an expert in such matters.

Metropolitan Life Insurance Co., New York City—As the third of a series of reports devoted to the subject of training and educating various types of personnel in business and industry, the Policyholders Service Bureau of this company has published a booklet entitled "Training Plans for Office Employees." This publication brings together successful programs of instruction which are being undertaken by several large commercial and industrial organizations. Copies upon request.

Reliance Elec. & Engr. Co., Cleveland, Ohio—The Reliance Fully-Enclosed Fan-Cooled Induction Motors are featured in a new booklet, No. 107, just issued.

Worthington Pump and Machinery Corporation, Harrison, N. J.—Bulletin L-400 features a new product recently added to the Worthington line, the Multi-V-Drive which is a unit consisting of a number of endless V-belts running in V-grooved sheaves. It combines a new long-life type of rubberized cord V-belt, impervious to dust and moisture with an improved V-grooved sheave. The advantages are set forth and the drive is illustrated.

The J. V. Walsh Sales Corporation, 705 Wabash Bldg., Pittsburgh, Pa.—A catalogue of the Roberts Centralized Systems of Positive Pressure Lubrication on which patents are pending, is being sent to the trade by this corporation, lubricating and bearing engineers. Layouts of typical mill table pressure lubrication systems are shown, in addition to photographs and diagrams of heavy duty and medium duty lubrication equipments. In the text are enumerated 17 points which provide a method whereby the anticipated performance and relative merits of different lubrication systems can be ascertained. Paper mill engineers may find it useful to provide themselves with a copy of this catalogue which will be sent on request.

BOOK REVIEWS

American Standards Year Book—Important progress in standardization work affecting mechanical, electrical, railways, mining and other major American industries is reported in the American Standards Year Book for 1930, just published by the American Standards Association, New York City. Among the high srots of the standardization movement during the past year, the 1930 issue notes: The underwriting by industry of $500,000 for the promotion of national standardization during the next three years; the affiliation of the American Standards Association with the national standardizing bodies of twenty other nations, through the International Standards Association; increased recognition of the value of national industrial standards in the field of foreign trade; the completion of an agreement between the American Standards Association and the United States Bureau of Standards providing for a maximum degree of co-operation between the government and private bodies in the promotion of industrial standardization. Copies of the Year Book may be obtained gratis by addressing the Association at 29 West 39th street, New York City.

International Control of Raw Materials—In this volume which deals with a particular phase of the problem; namely, government control of exports, the authors, Benjamin B. Wallace and Lynn R. Edminster, show by analysis of typical cases, the objects, methods and results of control. The policy of the United States in regard both to its own raw materials and to restrictions imposed by other countries is set forth. The book reveals the inadequacy of any purely national approach as a remedy for the situation, such, for example, as a policy of economic retaliation. It analyzes the international issues raised by the controls and discusses principles and machinery that might be utilized in adjusting international controversies in this field. There is a chapter on Canadian Embargoes for Pulpwood, and included in the Appendices is a statistical table giving Canadian production and export of pulpwood, wood pulp and paper, 1908 to 1928. The authors acknowledge helpful assistance in preparing the information on pulpwood and paper with credit to Norman D. Meese of the Paper Division, United States Department of Commerce and C. W. Boyce of the International Paper Company. This work is published by The Institute of Economics of The Brookings Institution. The price is $3.50.

Chemistry and Papermaking—In a paper-covered small octave volume of forty-eight pages, under the title **Chemie und Papierfabrikation**, the Otto Elsner publishing house of Berlin, Germany, has reprinted a series of articles contributed originally by Dr. Arthur St. Klein to the **Papier-Fabrikant**. Almost every conceivable application of chemistry to paper manufacture is treated and the brochure will be found useful for reference on account of the wealth of its citations from the periodical literature of papermaking; its value would have been much enhanced if an index to articles and authors had been provided. The price of the brochure is RM. 1.50 or 35 cents.

ADVERTISING PAGES REMOVED

The Month at Washington

A NEW TARIFF—More than 17 months was required to enact the new tariff bill, which is a record for putting through a tariff measure. The first steps in the preparation of the Hawley-Smoot measure were taken January 7, 1929 and the bill was signed June 17. The bill was passed by the House May 28 and the Senate toyed with it for more than 12 months before finally passing it.

Under Schedule 1, par. 33, compounds of casein, known as galalith, or by any other name, in blocks, sheets, rods, tubes or other forms, not made into finished or partly finished articles, carries a duty of 25c per pound; when made into finished or partly finished articles 40c per pound and 50 per cent ad valorem.

Under Schedule 3, par. 356 paper and pulp mill knives, roll bars, bed plates, and all other stock-treating parts for pulp and paper machinery, ** carry a duty of 20 per cent ad valorem.

Under par. 372 paper box machinery carries a duty of 25 per cent ad valorem.

Under Schedule 15, par. 1514, all papers, cloths and combinations of paper and cloth, wholly or partly coated with artificial or natural abrasives, or with a combination of natural and artificial abrasives, carry a duty of 20 per cent ad valorem. If containing vanadium, tungsten, molybdenum, boron, tantalum, columbium or niobium, or uranium, or chromium, 60 per cent ad valorem.

Under par. 1504 (a) braids, plaits, laces, and willow sheets or squares, composed wholly or in chief value of straw, chip, paper, grass, **** not bleached, dyed, colored or stained, carry a duty of 15 per cent ad valorem, and if bleached, dyed, colored or stained 25 per centum ad valorem;

Under par. 1552 ** cigarette books, cigarette-book covers, cigarette paper in all forms, except cork paper—carry a duty of 60 per cent ad valorem.

On the Free List, Schedule 16, we find par. 1735 covering duplex decalcomania paper not printed. Par. 1750 covering rag pulp; paper stock, crude, of every description, including all grasses, fibers, rags, waste (including jute, hemp and flax waste), shavings, clippings, old paper, rope ends, waste rope, and waste bagging, and all other waste not specially provided for, including old gunny cloth, and old gunny bags, used chiefly for papermaking and no longer suitable for bags. And par. 1772 covering standard newsprint paper.

The text of Schedule 14 covering paper, will be found in this issue, following this section.

Effect of Tariff on Foreign Trade—Following the enactment of the new tariff bill Secretary Lamont of the Department of Commerce issued a statement as to the effect it would have on our foreign trade. It is pointed out that the Tariff Act of 1922 raised the level of duties far more than has been done in the present revision, and that just as many protests were received from foreign countries and that there were just as many predictions of disaster to our foreign commerce. But what actually happened in the seven years of the existence of the 1922 act was that our total imports increased 41 per cent while our exports of finished manufactured products increased practically 100 per cent, and every year following the enactment of the 1922 Act showed a marked gain down to the present.

Any reductions of imports and exports which may set in during the last half of 1930 will not be due to the discussion of the Tariff or its enactment but due to a recession in business and a reduction in prices throughout the world. Other countries, as well as ours, have seen their trade in both directions decline during recent months.

This country is not alone among nations in making changes in its tariff levels. Nearly fifty other countries have made general upward revisions since 1925, including all of those countries which have protested against the proposals to increase our own rates.

The most important feature of the new tariff bill is the flexible clause. The old one we had did not work very well. The present clause is more effective in that the Tariff Commission has greater latitude at arriving at differences in costs of production as a basis for adjusting rates. If a foreign country believes that any of our tariffs are unduly high and prevent competitive shipment into the United States, it can present its case to the reorganized Tariff Commission which in collaboration with the President, has the power, if the complaint is justified, to rectify the rates. This procedure alone is unique in the world's tariff procedure. No other nation has offered us a similar opportunity to present our case.

Other Congressional Action—As the gong sounded in the halls of Congress for adjournment, we find the following bills in the throes of being passed or put on the docket for future attention:

The Senate passed the bill (S. 442) which is aimed to protect our patent system and which would suspend the right of a patentee to enforce action of infringement where he violates anti-trust statutes, and the suspension continues until the owner no longer is held to be in violation of such laws, in other words until he comes in with clean hands, a clear conscience, and is virtuous. The bill does not provide for forfeiture of patent rights however because of violation of laws against the restraint of trade or the anti-trust laws. The bill is simply aimed to prevent abuses of the patent system. It places the burden of proof upon the person charged with infringement of a patent.

A resolution was introduced in the House (H. Res. 242) against mergers, consolidations, and the organization of large stockholding corporations, and calling upon the Federal Trade Commission to make an extensive study and investigation of the results thereof and whether it is to the benefit or detriment of the public, with a report to be made when Congress convenes in December.

The Senate Committee on Public Lands favorably reported the resolution (S. Con. Res. 23) to designate and appropriately observe American conservation week, to be held the first week in April of each year to focus attention on the national policy of forest conservation, etc.

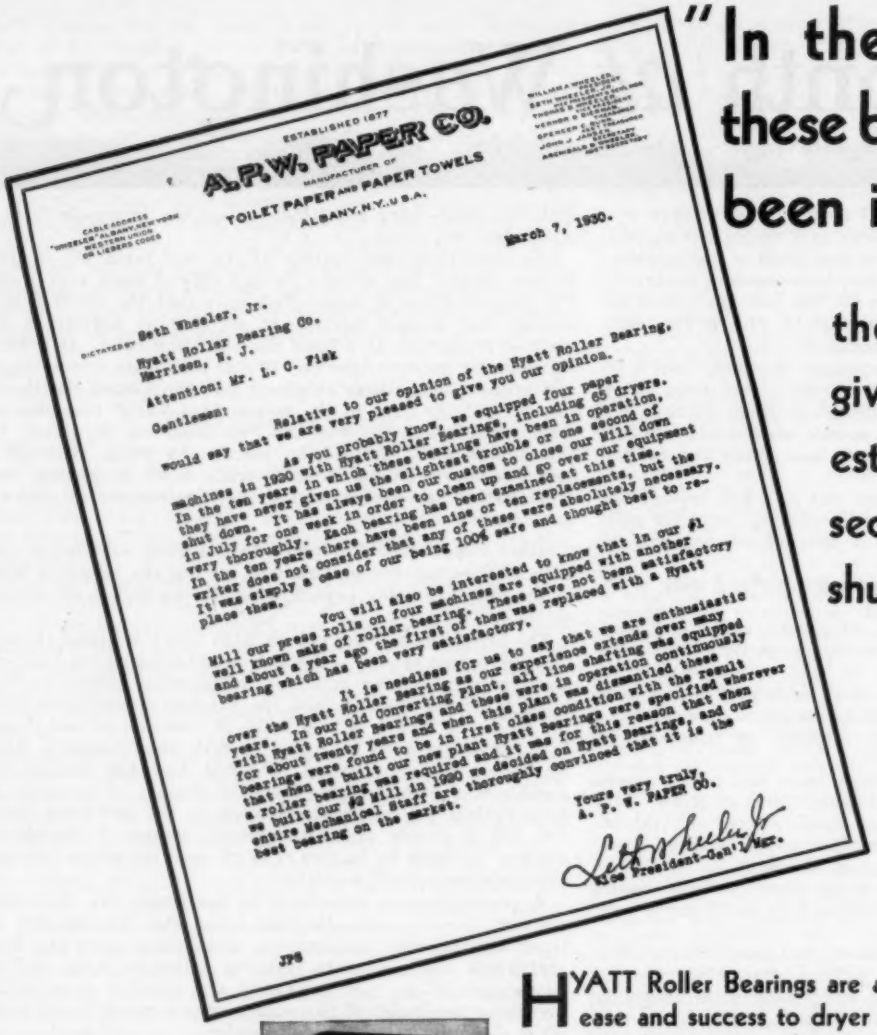
The House Committee on Patents submitted a lengthy report on the revision of the copyright laws (H. R. 12549) which would amend and consolidate the various acts of Congress respecting copyright and permit the entry of the U. S. into the International Copyright Union.

The present general copyright law was adopted 21 years ago (1909) and is antiquated, cumbersome and wholly inadequate under present conditions. Before that there existed the revision of 1891 which yielded in 18 years to the law of 1909. A similar bill to the present was introduced in 1926 but not a single Congress has as yet definitely acted upon any of the copyright bills thus far introduced. The features of the new bill are (1) automatic copyright; (2) divisible copyright, and (3) international copyright.

Interstate Commerce Rulings—Less-than-carload rate on waxed wrapping paper, not printed, from Louisville, Ky., to Milwaukee, Wis., was found inapplicable in a recent decision of the Interstate Commerce Commission, nor was the applicable rate not shown to be unreasonable, but second-class rates on waxed wrapping paper, printed, in less than carloads, from Milwaukee to Louisville and Indianapolis were found unreasonable on shipments originating at Neenah-Menasha, Wis., and reparation was awarded (Menasha Products Co., No. 21887)

"In the ten years these bearings have been in service...

they have never given us the slightest trouble or one second of shut-down."



ESTABLISHED 1877

A.P.W. PAPER CO.

MANUFACTURER OF

TOILET PAPER AND PAPER TOWELS

ALBANY, N.Y., U.S.A.

March 7, 1930.

DICTATED BY Seth Wheeler, Jr.

Hyatt Roller Bearing Co.
Harrison, N. J.

Attention: Mr. L. C. Fisk

Gentlemen:

Relative to our opinion of the Hyatt Roller Bearing, would say that we are very pleased to give you our opinion.

As you probably know, we equipped four paper machines in 1920 with Hyatt Roller Bearings, including 65 dryers. In the ten years in which these bearings have been in operation, they have never given us the slightest trouble or one second of shut down. It has always been our custom to close our Mill down in July for one week in order to clean up and go over our equipment very thoroughly. Each bearing has been examined at this time. In the ten years there have been nine or ten replacements, but the writer does not consider that any of these were absolutely necessary. It was simply a case of our being 100% safe and thought best to replace them.

Will our press rolls on four machines are equipped with another well known make of roller bearing. These have not been satisfactory and about a year ago the first of them was replaced with a Hyatt bearing which has been very satisfactory.

You will also be interested to know that in our #1 over the Hyatt Roller Bearing as our experience extends over many years. In our old Converting plant, all line shafting was equipped with Hyatt Roller Bearings and when this plant was dismantled these for about twenty years and when in operation continuously bearings were found to be in first class condition with the result that when we built our new plant Hyatt Bearings were specified wherever a roller bearing was required and it was for this reason that when we built our #2 Mill in 1920 we decided on Hyatt Bearings, and our entire Mechanical Staff are thoroughly convinced that it is the best bearing on the market.

It is needless for us to say that we are enthusiastic

Yours very truly,
A. P. W. PAPER Co.

Vice President-Gen'l Mgr.

JPS

Read every word of the accompanying letter and see for yourself why the application of Hyatt Roller Bearings means better operation and longer life to paper machines.

HYATT Roller Bearings are applied with equal ease and success to dryer rolls, of both new designs and existing machines.

In their oil-tight housings they eliminate the possibility of oil leakage and damage to paper and felt roll.

Considerably less power is required to start the dryer section because of the absence of bearing friction when Hyatts are employed.

Let us send you our new bulletin covering all Hyatt applications for paper machinery.

HYATT ROLLER BEARING COMPANY

Newark Detroit Chicago Pittsburgh Oakland

HYATT

ROLLER BEARINGS

PRODUCT OF GENERAL MOTORS

Employment and Pay-rolls—Employment statistics gathered for June show an increase of one-tenth of one per cent in employment and a gain of one per cent in pay-roll totals as compared with May, according to a report issued by the Bureau of Labor Statistics. With 1926 as the average of 100, we find the following changes:

	Employment			Pay-roll totals		
	1929	1930		1929	1930	
	June	May	June	June	May	June
Paper and printing	99.9	99.7	99.6	105.8	105.1	104.9
Paper and pulp	95.0	94.9	94.6	98.1	97.5	96.1
Paper boxes	92.5	89.3	87.8	100.3	93.2	90.9

Variations in Employment—"Variations in Employment Trends of Women and Men" is the title of a new publication by the Women's Bureau of the Department of Labor, which is a valuable guide to employers and manufacturers, showing the stupendous industrial drama centering about the use of improved machine methods and the development of large scale production and scientific management affecting the status of employment. The study is based on employment figures collected for the last ten years for both sexes. The increased employment of women in certain industries is noted, showing how an industry with the introduction of certain machinery can rely more largely on women workers. The paper box industry is pointed out as one example showing decreases in the proportion of women workers. An interesting feature of the bulletin is a series of special industry charts, 54 in number.

Excessive Noise Handicaps Workers—Numerous studies and experiments show that excessive noise reduces the efficiency of workers, yet business and industry are not attempting to any great extent to do away with noise, says the Commissioner of Labor Statistics. Reduction or elimination of disturbing noises has been shown to result in greater output and fewer errors, but few industrial or business leaders realize that noise impairs ability to produce and are doing very little to combat it. Even those persons who claim not to mind noise are affected by it, he says.

Paper Notes of Interest—The Canada Power and Paper Company intend to install on an experimental basis machinery in its mills at Three Rivers for the extraction of sulphur from pyrites, using the process developed at Shawinigan Falls, which process is reported to involve combustion of the finely divided by-product pyrites available in larger amounts from ore flotation or other sources. The material utilized is similar to powdered fuel, the generated heat operating a steam boiler from which the sulphur bearing gas receives its necessary cooling.

Accordling to a publication, "South as a Source of Wood Pulp" issued by the Georgia forest service, the greatest potential source of pulpwood for paper manufacturing in this country is in the pine belt of the South. Southern pine is said to grow 7 to 10 times faster than red spruce, now generally used for paper manufacture. In 1921 there were 26 pulp industries in nine states with an output of 382,500 tons annually whereas in 1929 there were 36 establishments with a capacity of over a million tons.

The large paper mill companies of New Hampshire, Vermont and Maine are obliged to import expert woodsmen from Canada to insure a sufficient supply of pulpwood for the mills, because they cannot otherwise find workmen, says a report of the Labor Commissioner of New Hampshire. Recently a fruitless drive was made by labor departments of these states to round up 2,700 woodsmen but only a few score were found following extensive advertising in the newspapers in all industrial centers. Pulp cutters are paid $2 to $2.75 a day, with board and lodging.

Ryther & Pringle Elect President

At a meeting of the board of directors of the Ryther & Pringle Co., Carthage, N. Y., held June 20th, D. W. Sarvay was elected president of the company to fill the vacancy caused by the recent death of George D. Ryther. Mr. Sarvay will continue in the capacity of general manager and no change of policy is contemplated.

Other elections were, William M. Fox, vice-president and Thomas C. Lynch, secretary and treasurer.

NEW YORK CITY

The International Paper and Power Company has moved its general offices from 100 East Forty-second street, New York, to the recently completed Daily News Building at 220 East Forty-second street, where it has taken under lease the upper fourteen floors, from the 23rd to the 36th floor. Into this space have been concentrated the main offices of the Continental Paper Bag Corporation, the Ticonderoga Pulp and Paper Company, the Veldown Company, and various other subsidiary organizations. The move has enabled the International to consolidate its main office operations and to coordinate departments more closely.

E. A. Gould

E. A. Gould, president of the Waxed Products Company, Inc., with plant and offices in the Bush Terminal Buildings, Brooklyn, N. Y., died at his home in Baldwin, L. I., on June 7. Funeral services were held on June 10.

Mr. Gould was active in the Waxed Paper Manufacturers' Association, and was widely known in the waxed paper industry, having been in business for almost a quarter of a century. He is survived by a widow, a daughter and a son.

Maurice M. Elish, head of the paper firm of M. M. Elish & Company, Inc., jobbers of fine papers of 29 Beekman street, New York, died on June 15 at his home at 376 East Eighteenth street, Brooklyn, N. Y., following a brief illness. Mr. Elish had long been identified with the paper merchandising trade in New York. A widow, two sons and a daughter survive.

Creditors of the Burkhardt Paper Co. Inc., of Carlstadt, N. J., have been notified that Edward A. Shilling, of Newark, N. J., has been appointed receiver for the company in a suit in the Chancery Court of New Jersey wherein Harry I. Goodman and Bernard I. Goodman are complainants.

S. H. Behrens, formerly vice-president and general manager of the James P. Heffernan Paper Co. 25 Water street, New York, has established his own business under the firm name of S. H. Behrens & Co., with offices at 115 Broad street, New York, to conduct a general paper distributing and exporting business. Mr. Behrens has associated with him a staff of men experienced in the paper trade.

The Lay Paper Co. Inc., exporter of paper and paper products, has moved from 29 Broadway to 11 Broadway, New York, the removal being necessary owing to the demolition of the building at the former address. L. Oscar Lay, of the Lay Paper Company has been appointed general manager of the James P. Heffernan Paper Company, of 25 Water street, New York, and the two companies will continue to work as heretofore in close harmony.

Sol Ash, Inc., dealers in paper mill supplies, have moved their offices from the fourteenth floor of 1440 Broadway, New York, to larger quarters on the sixteenth floor of the same building. At a meeting of the board of directors of the corporation, John J. Byrnes was elected vice-president, and A. M. Cogen was elected secretary of the corporation. Both Messrs. Byrnes and Cogen have been associated with the company for some time and are well known in paper stock trade circles.

W. L. Jones, Inc., has been incorporated under New York State laws to take over the old-established wholesale paper and twine business of the late W. L. Jones at 96-98 Prince street, New York. Mr. Jones, who died last November while on a hunting trip in Canada, had been in business at the Prince street address for 43 years. His son, Clinton P. Jones,

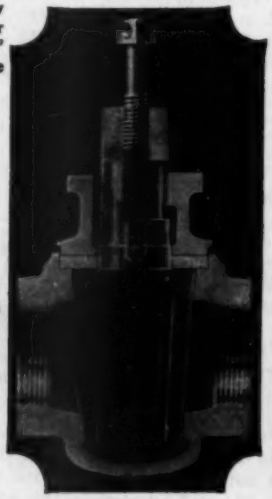
Use of PROPER LUBRICANT

very important

To secure the most efficient service from Nordstrom Valves, it is highly important that the proper lubricant be used.

Nordstrom engineers have developed a series of "Merco" Lubricants which are carefully compounded from the best materials to withstand the conditions of the many services in which Nordstrom valves are used. We do not make one kind of "Merco" Lubricant for all services because the lubricant in Nordstrom Valves performs the triple function of lifting the plug, lubricating the surface and sealing the valve against leakage.

Be sure you are using the right kind of "Merco" Lubricant in your Nordstrom Valves. To provide the most efficient valve service, our engineers have perfected a variety of special "Merco" Lubricants for valve uses in the Paper Industry. These lubricants are compounded from the best materials and you should know the lubricants best suited to your requirements. Send for latest Catalog which explains in detail the correct "Merco" Lubricant for every valve service or our engineers will be glad to advise you on request.



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Philadelphia - Brown, Wilcox & Company, 1600 Arch St.
Saginaw - Arthur C. Beckert, 113 Durand St.
Salt Lake City - National Equipment Co., 101 West 2nd South St.
Tulsa - B.V. Emery & Company, 216 E. Brady Street

Factories in U. S. Oakland, Calif. and Belleville, N. J.

Canada - Fraser Bros., Ltd., Montreal, Toronto, Winnipeg, Vancouver. (Also Sydney, N.S.)
England - Audley Engineering Co., Ltd., Newport, Shropshire.
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SPECIAL "MERCO" LUBRICANT FOR EACH SPECIFIC SERVICE

"Merco" Pipe Joint Compound is a metallic lead that securely seals joints, threads, gaskets, etc. Ask for literature.

THE PERFECT APPLICATION OF A PRINCIPLE

who was associated with his father for 20 years, is head of the new corporation.

Eberstadt I. P. Director

Ferdinand Eberstadt, New York partner of the investment banking firm of Otis & Co. and a director in many companies of the Otis-Eaton group, has been elected a director of the International Paper & Power Company, giving the banking group a second representative on the paper company's board of eleven. William Chamberlain, president of the United Light and Power Company, was elected to the International board last January.

Although officials of the International Paper and Power Company have made no announcement, Mr. Eberstadt's election is believed to be due to the holding by Continental Shares, Inc., the principal Otis-Eaton holding company, of 84,700 shares of Class C stock of the International.

Charles H. Preston has opened an office at 11 West Forty-second street, New York, to distribute paper to the jobbing trade in the East. For a number of years Mr. Preston was New York representative of the York Haven Paper Co., and enjoys a wide acquaintance in the paper industry.

The Kalbfleisch Corporation, of 200 Fifth avenue, New York, has announced the appointment of Joseph D. Lowery as sales manager of its heavy chemicals division. Mr. Lowery has been with the Kalbfleisch organization for more than 15 years.

William M. Pringle, vice-president of the Seaman Paper Co. of Chicago, heretofore in charge of the Philadelphia branch office, has been appointed eastern sales manager with headquarters in the Chanin Building, 122 East Forty-second street, New York, and has assumed his new duties in this city.

Harry W. Draudt, formerly associated with M. Gottesman & Co., Inc., wood pulp importers of New York, is now on the pulp sales staff of Price & Pierce, Ltd., of 17 East Forty-second street, New York.

◆ NORTHERN NEW YORK ◆

Keystone Wood Chemical Co. Bought at Auction

Property of the Keystone Wood Chemical and Lumber Corp. at Glenfield, which originally cost about $3,500,000, was bid in for $700,000 by Henry Fitts of Chicago, representing the bond holders protective committee, at a public auction conducted June 16 by Attorney Lawrence Russell of Canton, who was designated special master by the United States district court. The protective committee which consists of Mr. Fitts, A. M. Coit and George R. Birkelund, all of Chicago, was appointed to look after the interests of the bond holders, chief among whom is the Baker-Fentriss Co. of Chicago.

The bond holders committee will resume operations at the Keystone plant which employed nearly 500 men before it was closed due to financial difficulties about a year ago. The exact date upon which the plant will be reopened has not been determined but preliminary work is now under way and it is expected work will be commenced early in August.

The Keystone company operated one of the largest wood distillation plants in the world. It owned 42,000 acres of virgin forest in the Adirondacks which was connected with its plant by the Glenfield and Western Railroad.

Niagara-Hudson Power Corp., which recently acquired all the stock of the Union Bag and Paper Power Corp., has announced that the pulp mill of that company at Tacoma, Wash., having a capacity of 45,000 tons of kraft pulp annually, has been sold to the Pacific Pulp Mill Corp., a newly organized subsidiary of the St. Regis Paper Co. The output of the mill will be shipped via the Panama Canal to the mills of the St. Regis company in the Eastern United States for the manufacture of paper for use in multi-wall bags.

The three hydroelectric plants of 10,000 horsepower capacity owned by Union Bag and Paper Power Corp. on the upper Hudson river are now being utilized by Niagara-Hudson Power Corp.

The Degrasse mill of the International Paper Co. at Pyrites was closed down July 1. It is reported the mill will be closed for a year with the possibility of a permanent discontinuance. The Ogdensburg pulp terminal of the International was also closed. The wood received at Ogdensburg via the St. Lawrence river was trans-shipped by rail to Pyrites.

◆ PACIFIC COAST ◆

WASHINGTON

E. M. Mills was again elected president of the Grays Harbor Pulp & Paper Co., Hoquiam, at the recent annual meeting. Two vice-presidents, J. D. Zellerbach and I. Zellerbach were elected; W. L. Raymond was elected secretary; Chas. H. Conrad, assistant secretary; S. Sonnenberg, treasurer, and A. I. Ellis, assistant secretary and assistant treasurer.

Paper interests of the northwest are now encouraged by the increase in appropriation from $10,000 to $25,000 by the Government for the study of western species woods, with special reference to Douglas fir, this amount to be available July 1. The subject of waste products in northwest forests has long been a salient one in economic discussions and it is now felt that with this money available the western woods for pulping purposes will be given valuable consideration. Douglas fir is now used successfully in some plants for kraft paper manufacture but it is believed that with this added fund for research a way may be found to utilize the fir for newsprint.

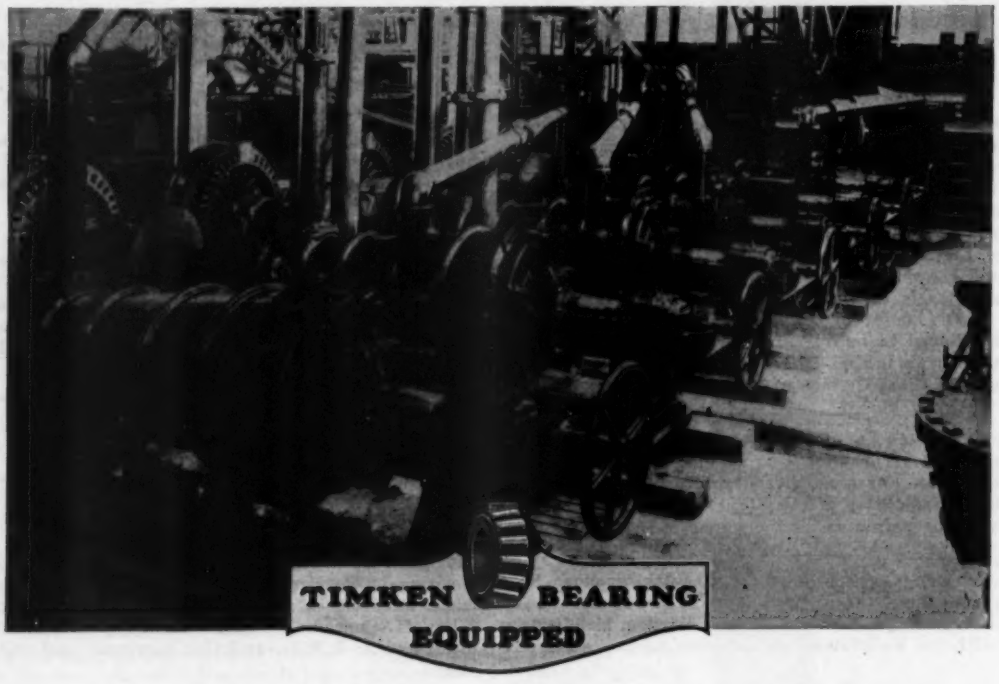
To Celebrate Opening of New Plant

One of the big events in northwest pulp and paper circles this month is the opening of the $4,000,000 plant of the Puget Sound Pulp & Timber Co. at Everett. It is expected that this will be in full operation by the middle of July as far as can be seen in latest reports. Harold Cavin, engineer in charge for Albertson Brothers-Cornell reports that the sawmill cutup and chipping plant started June 12 and chips are being stored in chip lofts over the five big digesters. The acid plant also started about the middle of June and other equipment will have all been put under operation in a very short time.

An opening celebration is tentatively planned sponsored by the Everett Chamber of Commerce of which Frank Walsh is president, and officials of the Puget Sound Pulp and Timber company. This event will also include celebration of the new $2,000,000 municipal pipeline and water system which will serve the big new industry as well as other needs of the city.

The company shipped 523 tons of pulp to Portland, Me. last month.

The British-American Consolidated Properties, Ltd., which recently took over the interests of the original Willapa Pulp & Paper Co., with offices in Seattle, has still made no definite move to build on a site acquired a number of months ago by the founders of the Willapa company headed by R. A. Swain. This spring Mr. Swain moved his office from Portland to Seattle and it was indicated at that time that the actual construction of a plant between Raymond and South Bend might start, but to date only inactivity is evident.



Timken-Equipped Emerson Jordans Keep Costs Down - Quality Up

About a year ago a New England Mill, manufacturers of high grade Kraft paper, installed a battery of six Emerson Jordan engines to take care of increased production.

On the recommendation of the builders, The Emerson Manufacturing Company, Lawrence, Mass., these Jordans were Timken Bearing Equipped in order to save power and lubricant and assure uninterrupted service. Costs were to be cut, but quality was to be jealously guarded.

After a year of steady operation, Timken Bearings have more than justified the judgment of the builders of the Jordans, and the confidence of the user. They have reduced the power consumption, lengthened the service obtained from the filling and, by permanently holding the plug in exact alignment with the shell, they have made possible a more uniform treatment of the stock than can be obtained with plain-bearing Jordans, thus not only maintaining, but actually improving the quality of the paper.

In the years to come, these Timken benefits will take on added value as maintenance costs are slashed and machine life prolonged by the exclusive radial-thrust carrying combination of Timken tapered construction, Timken positively aligned rolls and Timken-made steel—the only combination that meets every modern anti-friction requirement in Jordans, paper-making machines, Fourdriniers and other types of paper mill machinery.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

Pacific Pulp Mill Corp. is the name of the new subsidiary created by the St. Regis Paper Co., to control the Union Bag kraft mill at Tacoma. Nels Teren, general manager of the kraft mills of St. Regis, was in the northwest for sometime while negotiations were in progress. W. W. Griffith is manager of the plant at Tacoma and Dennis Cousins general superintendent and both these men will retain their positions under the reorganization.

The Longview Fibre Co., Longview, made a trial run of their large new pasting and cutting machine in their new boxboard plant just being completed, the last week in June. This plant will produce a long-fiber boxboard which under tests proves very tough yet pliable as leather.

D. F. Gallagher, recently with the National Paper Products Co. as office manager at Port Townsend, is now in charge of the office for Crown-Zellerbach at Camas.

Rollin C. Avres, advertising manager for the Zellerbach Paper Co. was prominently identified with the convention program of the Pacific Advertising Club Association held in Spokane June 22-26. Several years ago he became famous as the sponsor of three-minute speaking contests on these annual programs and now he is expected to supervise this feature by reason of his past success. It is one of the high lights of the convention.

Blake, Moffitt & Towne have opened a new branch in Walla Walla with J. G. Brittain in charge where they will stock coarse papers.

G. J. Armbruster, recently in charge of a mill at Athol, N. B. owned by the Fraser company, is now general superintendent of the new 175-ton bleached sulphite pulp mill of the Puget Sound Pulp & Timber Co. at Everett.

F. W. Leadbetter, paper mill financier of the northwest, president of the Columbia River Paper Mills, Vancouver, is enjoying a yachting cruise in Alaskan waters.

Cascade Paper Affairs Still Unsettled

Affairs of the Cascade Paper Co., Tacoma, are still in an unsettled state. D. J. Young was appointed receiver last month following a suit brought by the Defiance Lumber Co., a creditor. Mr. Young listed liabilities at $1,290,538 and declared the company insolvent. Listed among liabilities are a bond issue for $675,000, taxes of $49,773 and unsecured indebtedness of $565,765. Assets are given as the paper plant and 1,235 shares in the Pacific Tablet Manufacturing Co., although no estimate of assets was given. An order was issued by Judge Card putting all assets up for sale saying that if the property was not sold a foreclosure on the bond issue would cause a greater loss to creditors.

Some later reports have intimated that a reorganization might take place but to date nothing definite has been announced.

Crown-Willamette Paper Co. is petitioning for a permit to build a dike across Camas slough at Camas, extending over 2,000 feet with a culvert ten feet in diameter. This is intended as a storage pond as well as a protection for the shore on the Washington side. A wire has been sent to Washington regarding this request.

Pacific Coast Paper Mills has added some new equipment to its plant at Bellingham where converting processes are featured with tissue as a major product.

The pulp industry of the Pacific Northwest is watching with interest the result of seven test suits filed in federal court in Tacoma against the Rainier Pulp & Paper Co. by owners of Puget Sound oyster beds who claim that the waste products from the pulp mills have killed the oysters and ruined business. Damages claimed in the suits already filed aggregate over $700,000 and it is said that other oyster companies are awaiting the result of these cases before filing more suits.

The Crown-Willamette Paper Company's mill at Camas will make the new pure white towel of bleached sulphite which is being distributed by the Zellerbach Paper Co. In addition to its high crepe finish which prevents rapid saturation, it has a wide hem which is not easily torn. This will be trade-marked Public Service and will supplant the former line of that name. Two cheaper grades, Damask and Certified will be made at the Camas plant.

Northwest Paper to Build Pulp Mill

H. C. Hornby, president of the Northwest Paper Co. of Cloquet, Minn., announced June 13 that a large pulp mill and wood conversion plant will be established at Longview on the Columbia river adjacent to the property of the Weyerhauser Timber Co. which would be the producer of patented lumber products. No date was announced for the start of construction. It is generally assumed that the plant will be a pretentious one manufacturing pulp and pulp board.

The Northwest Paper Co. of Cloquet is the parent institution for several extensive wood by-products plants, and is a large producer of balsam wool and insulating material widely advertised by Weyerhauser.

Sometime ago a pulp and paper engineering department was added to the Weyerhouser plant and at that time local interests foresaw some such announcement as has just been made.

W. J. Mabon, Oregon-Washington representative for the Insulite Company of Minneapolis, accompanied J. M. Kamps, sales manager for the company, on a trip to Vancouver, B. C. when the latter made a recent coast tour. The Insulite Company is a subsidiary of the Backrus-Brooks group.

The capacity of Washington Pulp & Paper mills last year was found to be 2,000 tons per 24-hour day and the annual production had risen from 95,000 tons in 1921 to 410,000 tons in 1929 according to a recent industrial survey. In 1927 only 250 carloads of pulp were shipped from western Washington; in 1928 the shipments were 850 carloads and in 1929 the shipments reached 1,250 carloads. Paper manufacture increased in like proportion.

Rainier Pulp & Paper Company's Class "A" common stock was called for trading on the Seattle exchange June 10, the listing covering the entire 100,000 shares, all of which are outstanding no par value, which have been in the Seattle curb but which have not been transferred. The company also has 123,000 shares of class "B" common which is unlisted. Net profits for the 11 months to April 1, 1930, out of sales in excess of $2,000,000, were $500,000. Total assets of this time were in excess of $3,380,000 and surplus nearly $3,170,000.

CALIFORNIA

The Los Angeles Paper Box Co., 3324 South Main street, Los Angeles, has plans under way for a new building in Oakland at 2615 Pitt street. This will be a one-story structure to cost $80,000 with equipment and will be used for making paper boxes and cartons of the folding type. This company has been carrying on a general program of expansion.

The Zellerbach Paper Company's headquarters in Long Beach has recently been moved from 905 Pico street to 1165 West Ocean boulevard where larger space is available. C. H. Johnson is manager.

The Waxed Paper Products Corp. of California, with a

WHERE THE G.T.M. HAS BEEN PRODUCTION COSTS ARE LOWER

Well known in industry are the economies of the G.T.M.—Goodyear Technical Man. He is a rubber expert who sits in on all jobs with a veteran's knowledge of manufacturing problems. He knows costs. He knows production. Whether it is movement of goods, air, liquids, or engine power, by skilful specification of Mechanical Rubber Goods he reduces expense and avoids loss. Swift, smooth, low-cost production is his goal. Many plants similar to yours enjoy new operating freedom from his work. See the G.T.M. to stop those costly leaks.

Your job is paper. The G.T.M. is an expert in your field. He has applied Goodyear Transmission Belting with remarkable success on beater drives. He has specified soft-nozzled Goodyear Water Hose, Goodyear Air, Steam, and Fire Hose to the needs of countless paper manufacturers. The G.T.M. knows paper mills. He is your man, ready for your job.

For full information on savings the G.T.M. can bring to your business, write to Goodyear, Akron, Ohio, or Los Angeles, California.

THE GREATEST NAME IN RUBBER

GOODYEAR

HOSE BELTING MOLDED GOODS PACKING

capital stock of $100,000, plans to operate a plant for production of waxed paper and other specialties. D. W. Carpenter of Beverly Hills, A. Eric Copland and George T. Vance both of Los Angeles, are principal members of the company.

Paul Wineman of San Francisco, has been appointed northwest representative for the Longview Fibre Co. and is moving to Longview. C. J. Bastedo will be in charge of sales with offices in San Francisco.

Charles Ruble, president of the Standard Box Co., Los Angeles, is highly gratified over the possibilities of a new fiber cigar box which his firm has patented and which promises to become popular as it is sold for less than the wooden boxes. Special machinery has been installed in the Standard Box Company's plant to make the boxes. Already one well-known brand of cigars is being packed in this container.

Zellerbach Visited by Alaskan Business Men

Norman R. Walker, mayor of Ketchikan, Alaska, accompanied by W. A. Bates, banker of that city and Lester O. Gore and M. J. Bucey, business men interested in certain proposed pulp and paper projects in the territory, made a hurried visit to San Francisco last month to hold conferences with officials of the Zellerbach Paper Co. reported to be interested in building a large pulp mill near Ketchikan.

The Tongass National Forest in which the new projects would be located is said to be capable of producing in perpetuity 1,000 tons of pulp daily. This output would never decrease, Mayor Walker states, because of an efficient reforestation program. The Zellerbach plant if built would be started in two years, completed in four and employ about 2,000 men.

"This will create a stimulated business condition in Alaska greater than any gold rush when it gets going," said the mayor, "for more than three-fourths of the domestic demand can be supplied by American plants."

OREGON

The Oregon Pulp & Paper Co., Salem, is asking vacation of 43 feet along one side of its building in connection with a new $60,000 addition to its plant which is soon to get under way. The company has announced that it will also build a new $20,000 boiler unit to eliminate the cinder nuisance about which complaints have been made by business interests of the city. A new filtration unit is also part of the expansion program to be included in the building activities.

E. T. Bellew, paper mill engineer, who has been with the L. A. De Guere force on the west coast is now with the Sitka Spruce Pulp & Paper Co. at Empire.

Decrease in capital stock of the Federal Paper & Board Mills, Portland, from 5,000 shares, no par, and $200,000 preferred, to 250 shares of no par common, has been announced. Papers were filed by Collier, Collier & Bernard, attorneys, late in June.

C. L. Shorno, vice-president of Blake, Moffitt & Towne, is a member of the executive committee for Buyers' Week to be held in Portland the week of August 4-9. He is also chairman of the committee on display and decorations for this event.

Jan Haugerud, recently with the Camas plant of the Crown-Willamette Paper Co., is now located at West Linn as sulphite superintendent.

J. H. Burnside has been appointed to handle sales promotion for the Fir-Tex Insulating Board Co. of St. Helens.

When the Oregon Safety Congress was organized in Portland last month by a group of industrial leaders, E. R. Brown of the Crown-Willamette company was elected to represent the firm on the executive board of the new organization. Another meeting is planned for the Safety Congress in December. The announced purpose of this meeting is to promote safety in every factory, workshop or forest in the state.

Fir-Tex Insulating Board Co. which expects to get its new plant at St. Helens into operation this month, making insulating board products, has arranged to establish chippers all along the Columbia river to cut up the waste wood from lumber camps which will be floated down the river on barges to the Fir-Tex mill.

W. S. Hodges, representing the Appleton Woolen Mills, the American Wringer company and the Appleton Wire Works, Inc., Oregon, opened offices in the Lewis building, Portland June 1.

Rufus C. Holman, manager of the Portland Paper Box Co., was elected president of the Pacific Coast Paper Box Manufacturers' association at the annual coast convention held in Astoria June 25. R. O. Comstodt of San Francisco, was made vice-president; Clarence Kerr, Los Angeles, secretary; other executive members of the executive committee include Charles Ruble, Los Angeles and H. M. Simmons, Seattle.

Seaman Paper Company in Expansion Move

The Seaman Paper Company has taken the first steps in a general expansion of its business, according to a recent announcement by George M. Seaman, president.

The Seaman Company will extend its coverage of the tonnage paper field, to include further mill representation and an increased selling and service organization. According to Mr. Seaman, the move now under way, which will be further amplified during coming months, will provide a selling and service organization on mill papers of a scope national in character and in operation, more comprehensive than any now existing.

Mr. Seaman has all confidence in an early return to business normalcy. "The Seaman Company undertakes this program with full confidence in the fundamental soundness of business conditions," he said. "This move has been under advisement for sometime. We feel that now is the time to increase our efforts, so we will be in accord with the upward swing of business. Periods of depression often serve a good purpose in that they demand extra effort on the part of all."

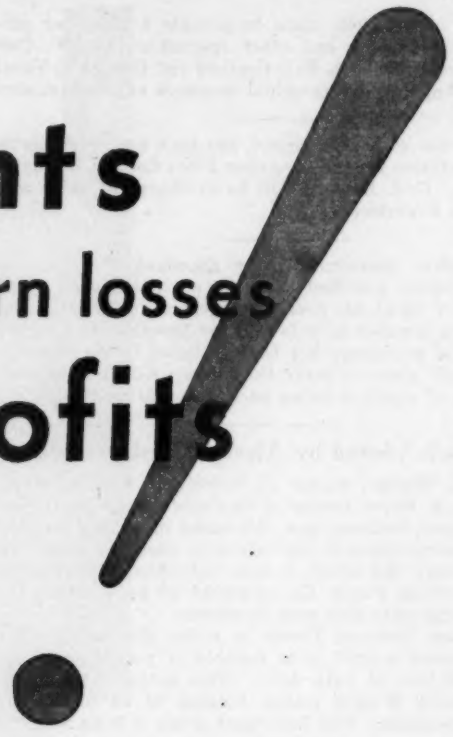
As a first move in its program, The Seaman Company has sold its stock and merchandising departments in Chicago to the Whitaker Paper Company, effective August 1. It is planned to dispose of the balance of stock and merchandising departments in other localities.

Higher Duty Asked on Paper Napkins

An effort is being made to secure a higher rate of duty on paper napkins, by changing the classification from tissue paper to manufactures of paper, wherever the latter rate is higher than the tissue paper rate. The tissue paper rate is 5 cents per pound and 15 per cent, or 6 cents and 15 per cent when of light weight, and in many cases the 35 per cent rate for manufactures of paper is productive of a greater protection to domestic mills than the tissue paper rate. The customs officials agree with the contention of the Import Committee of the American Paper Industry and are so classifying the napkins. Importers, however, have protested this ruling to the United States Customs Court. The tariff law provides that in cases where two classifications are correct, that the one producing the higher rate of duty shall be applied.

Edge Moor Iron Company recently announced the appointment of Harry L. Moody as general sales manager. Mr. Moody will be located at the main office of the company.

Lubricants that will turn losses into Profits



THE money saved through the use of the highest quality lubricants designed expressly for the work to which they may be applied, more than pays the cost. Effective lubrication often turns unsuspected losses into very satisfactory operating profits.

Conditions in the paper industry today demand close attention to production costs. Big things are being accomplished—but there is still much that can be done.

Paper mill lubrication is one of the promising fields for study. The executive who will undertake a thorough investigation of lubrication practices within the plant is assured of results. Texaco engineers will gladly cooperate in this investigation. Their close contact with the industry and wide experience in overcoming all sorts of lubricating difficulties enable them to render the highest type of profitable lubrication service. And there is a Texaco Lubricant for every purpose. Write The Texas Company first.

TEXACO

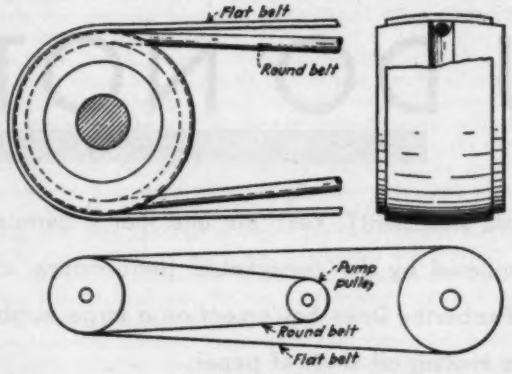
THE TEXAS COMPANY,
135 East 42nd Street, New York City

TEXACO LUBRICANTS

Practical Helps for the Mill Man

One Pulley Double Belt Drive

A DOUBLE belt drive from one pulley was described by H. Moore in the May 27, 1930, issue of **Power**. This drive resulted from the temporary installation of a small belt driven pump at a point which offered no convenient means for driving it other than through a solidly built pulley on another machine. This pulley was removed from the machine and a V-groove cut in the center of its periphery to take the round belt of the pump. The grooved pulley was then placed in position and the pump mounted with its pulley between the machine driving belt. The belts were installed with the round belt of the pump slipping into place in the groove of the machine pulley. This drive worked ideally for the short time required. It was not recommended, however, as a permanent drive because of the danger incurred if the small belt should break.



Arrangement of round and flat belt drive from same pulley

Centrifugal Pump Laws

CAREFUL selection of pumps for any given task in the pulp and paper making industry is imperative. Centrifugal pumps have found wide application in the field. With so may applications of such pumps in the industry, it is well to remember that their operation is governed by certain fundamental laws. For example:—When the diameter of a pump impeller remains the same, the quantity of material handled by the pump will vary as the speed, while the head against which the pump operates will vary as the speed squared, and the power will vary as the cube of the speed. Likewise, if the speed of the pump is kept constant and the diameter of the impeller changed, the quantity of material handled by the pump will vary as the diameter, the head will vary as the square of the diameter, and the power will vary as the cube of the diameter. It is well to keep these so-called affinity laws in mind whenever thought is given to centrifugal pumping problems.

Electric Pyrometer for Rotary Kilns

A WELL known chief electrician in the pulp and paper industry has suggested recently that electric recording pyrometers may be used to continually record the temperature in revolving lime kilns. The thermo-couple of a pyrometer may be inserted through the wall of the kiln in any place from where it is desired to obtain the temperature reading. It should be connected solidly to two slip rings encircling the kiln and insulated from it. The connections should be made with asbestos covered wire. The pyrometer may then be connected to the rings through carbon brushes. Inasmuch as the potential generated in a thermo-couple is very low, care must be exercised to obtain the minimum of contact resistance between the brushes and the rings.

Portable Testing Table

IT has been suggested that a most convenient portable testing table for various electrical tests may be made by building a cabinet table on a boy's coaster wagon. The original wagon box should be removed and a cabinet, with drawers or compartments suitable to hold the testing equipment, substituted for it. The top of the cabinet should be of table height. Such a height permits the top of the cabinet to serve as a place to set up the testing equipment after it has been hauled to the location of the test.

A Supplementary Safety Crane Hook

IN the April 1930 issue of **Industrial Engineering** was described a crane hook that increases safety in handling loads. It was described by G. A. Luers who stated that it was devised by the shop foreman to prevent mishaps which had occurred when using loose wire slings for handling large parts with a crane. The main feature in the design of the safety crane hook permits the grip to tighten with increasing loads. The safety hook consists essentially of two pieces of forged steel—one part forming a hook, the other part being L-shaped and containing an eye for the crane hook. The L-shaped part is pivoted to the hooked-shaped part in such a way that, as the attached crane hook raises, it tightens the safety hook with a grip that increases with increasing loads. Without doubt, numerous uses for a similarly designed hook may be found in every pulp and paper plant.

Measuring Printing Paper for Transparency to Light

THE limitations of some of the general methods of measurement of the transparency of light of papers are discussed. A method which proved satisfactory in the works is described. Diffused light from a high power lamp is passed through the paper to be tested and through a number of layers of tissue paper placed, respectively, in adjacent chambers, of the viewing apparatus. These chambers are connected by blackened tubes to a Duboscq prism attachment similar to that of a colorimeter, and the number of layers of tissue paper is altered until equal intensity of transmitted light is obtained in both fields. The number of layers necessary is then a measure of the transparency of the paper under test. The tissue paper used is compared with a standard plate of gray glass of known transparency to light. Ordinary newsprint should have transparency numbers of sixteen to nineteen. This means the number of sheets of tissue paper required for matching. Good newsprint should have a transparency coefficient of twenty to twenty-five. The higher the number the more suitable is the paper for printing purposes. E. H. Riesenfeld and T. Hamburger, Der Papierfabrikant, volume 28, pages 55 to 57.

YOU PAY FOR PENBERTHY PAPER DRIER EQUIPMENT

WHEN YOU DO NOT USE IT!

AN UNUSUAL statement? Yes! But one that is certainly substantiated by the remarkable performance and savings of Penberthy Drier Equipment on a large number of machines making all kinds of paper.

An Eastern mill* experienced an average daily production increase of 21% (20,645 pounds) when it equipped ten machines with Penberthy Drier Equipment. The scientific drying resulting from the Penberthy Equipment also secured a finished sheet with a uniform moisture content and no paper has since been returned due to incorrect drying.

A Michigan mill* making heavy weight sulphite papers on an 84" cylinder machine reduced steam consumption from 4.6 pounds per pound of paper to 2.46 pounds when Penberthy Equipment was installed.

In Ontario, a machine* having Penberthy Drier Equipment has established a new world's record for newsprint production.

A large mill* making high grade product reports that snap-offs and rejected paper have been reduced to the point that its books show a 20% increase in shipped paper. The speed of the machine was not increased. The improvement was due to the scientific drying that resulted from the installation of Penberthy Equipment.

Penberthy Drier Equipment can now be paid for out of savings it is guaranteed to make. Three purchase plans are available—wire or write for complete information.

PENBERTHY PRODUCTS

PENBERTHY INJECTOR COMPANY

Established in 1886 — DETROIT — Canadian Plant Windsor, Ont.

*Name upon request

Canadian News

Will Study Newsprint Mill Proposal

Great relief was felt in the Canadian newsprint industry at the announcement from St. John's that the Newfoundland Government will not, during the present session, submit to the legislature any agreement for the establishment of a newsprint mill on the Gander River. The announcement, which was made in the House on June 5, referred to the tentative agreement between the Reid Newfoundland Co. and the Hearst interests, whereby the latter would establish and operate a mill with a daily output of 1,000 tons, contingent on the securing from the Government of supplementary timber areas in Labrador.

The Hon. Dr. A. Barnes, Colonial Secretary, read a communication which has been sent to the Reid Newfoundland Co. giving the Government's stand in the matter. It stated that the Dominion Newsprint Co., the operating concern, had given no specific guarantee that they would undertake the enterprise; that the parties had sent no representative to Newfoundland to negotiate with the Government; that disposition of output, if the operation was undertaken, was not assured, and that the time in which the Government had been asked to consider the matter was altogether too limited. The negotiations are supposed to have been between the Reid Co. and the Hearst interests, but the Government was not satisfied with the bonafides of the syndicate, or that it actually represented the Hearst interests. The suggested contract would have included the transfer of certain rights in Labrador. The syndicate sought a Government guarantee of $15,000,000, together with a rebate of customs duties on machinery and construction for 25 years.

The government of Walter Monroe, two years ago, in the hope that the Reid Newfoundland Co. who are the owners of this property, and the International Paper and Power Co. of Newfoundland, which was then looked upon as a possible purchaser, might come to an agreement, passed an act giving certain concessions which included the right to export one-half cord of rossed or barked pulpwood from Newfoundland for each ton of paper manufactured.

The Reid Newfoundland Co. is said to have two possible customers, Hearst and International Paper. It is anxious to sell as negotiations have been going on for a number of years and the death of some of the principals of the Reid Co. has brought the time when a legal distribution of the estates must be made very much nearer. The country, however, while it dislikes a new guarantee, is not anxious to see International Paper, which now controls very extensive timber areas on the west coast of Newfoundland, extend its holdings to the east coast, with the possibility of export of unmanufactured wood included.

The possibilities, in fact the almost imperative necessity, for the proposed new industry, had it been approved, securing rights to pulpwood areas in Labrador may be judged by the following figures: International Paper, with a daily production of 600 tons of newsprint, controls timber areas comprising 8,062 square miles; Anglo-Newfoundland Development Co., with a production of 400 tons, controls 6,696 square miles; the Gander properties, including two areas situated in the two northern peninsulas, with a proposed output of 1,000 tons, controls only 5,366 square miles. That is to say, with an area of only one-third the combined areas of International and Anglo-Newfoundland, the Gander prospects were for an output equal to the combined production of the two other mills. It is felt by some that these Newfoundland areas would be entirely insufficient to supply the demands of a mill of such a size; and although no mention was made of Labrador areas by the government, engineers had no hesitation in declaring that such were actually under consideration.

On June 23 Premier Squires announced to the House that during the year the Government will take under consideration the proposed Reid-Hearst agreement for a 1,000-ton newsprint mill.

❖ QUEBEC ❖

Merger Creates Largest Newsprint Organization in the British Empire

One of the most important steps in the development of the Canadian newsprint industry was announced last month by Lord Rothermere, president of Anglo-Canadian Pulp and Paper Mills, Ltd. It will have the effect of consolidating a considerable section of the newsprint industry in Canada, thus ensuring the legitimate expansion of this important factor in the exports of the Dominion. The scheme provides for the amalgamation of the Rothermere interests, as represented by the Anglo-Canadian Pulp and Paper Mills, with the Canada Power and Paper Corp., which is controlled by the Holt-Gundy group. It will consolidate British and Canadian capital in the development of the largest newsprint manufacturing corporation in the British Empire. The terms on which the merger has been effected are outlined in the following statement by Lord Rothermere:

"After due consideration of conditions affecting the future of the newsprint industry, the directors of Anglo-Canadian Pulp and Paper Mills and the directors of Canada Power and Paper Corp. have agreed that it will be advantageous to amalgamate. The amalgamation is to be effected through the assumption by Canada Power and Paper of the existing guarantee of the debentures of Anglo-Canadian Pulp and Paper Mills, the guaranteeing of the dividends on the 7 per cent cumulative preference shares, and the exchange of the ordinary shares of Anglo-Canadian for common shares of Canada Power and Paper on the basis of 2¼ shares of the capital stock of the latter corporation for one ordinary share of Anglo-Canadian Pulp and Paper Mills.

"The result will be that the present holders of Anglo-Canadian Pulp and Paper Mills ordinary shares will become large shareholders of Canada Power and Paper Corp. The properties of Anglo-Canadian will immediately become an important unit in the largest newsprint manufacturing company in the British Empire, and should enjoy the advantages in management and operations accruing therefrom. Although the guarantee of the debentures is assumed by Canada Power and Paper, owners of the debentures will continue to hold the guarantee of Daily Mirror Newspapers, Ltd., and Sunday Pictorial Newspapers (1920), Ltd., which are the companies that guaranteed the issue prior to the public offer in England.

"The daily capacity production of the combined companies will be approximately 2,500 tons of newsprint, plus a large tonnage of pulp, kraft and board papers.

"Present shareholders of Anglo-Canadian will be represented on the board of directors of Canada Power and Paper, of which approximately 97 per cent of the stock will be held by British and Canadian investor."

Anglo-Canadian owns a 500-ton newsprint mill at Quebec City, with a site of about 70 acres on tidewater and with deep-water frontage on the St. Lawrence River suitable for ocean-going vessels. It also controls large and valuable timber reserves. The limits originally acquired by the company are situated on the Manicougan River and those limits, together with others subsequently acquired, are estimated to contain over 10,000,000 cords of pulpwood. The company obtains power from the Shawinigan Water and Power Co. under a favorable contract running for 25 years from 1927, with option of renewal for a further period of 25 years.

The Canada Power and Paper Corp., which produces more than 20 per cent of all the newsprint manufactured in Can-

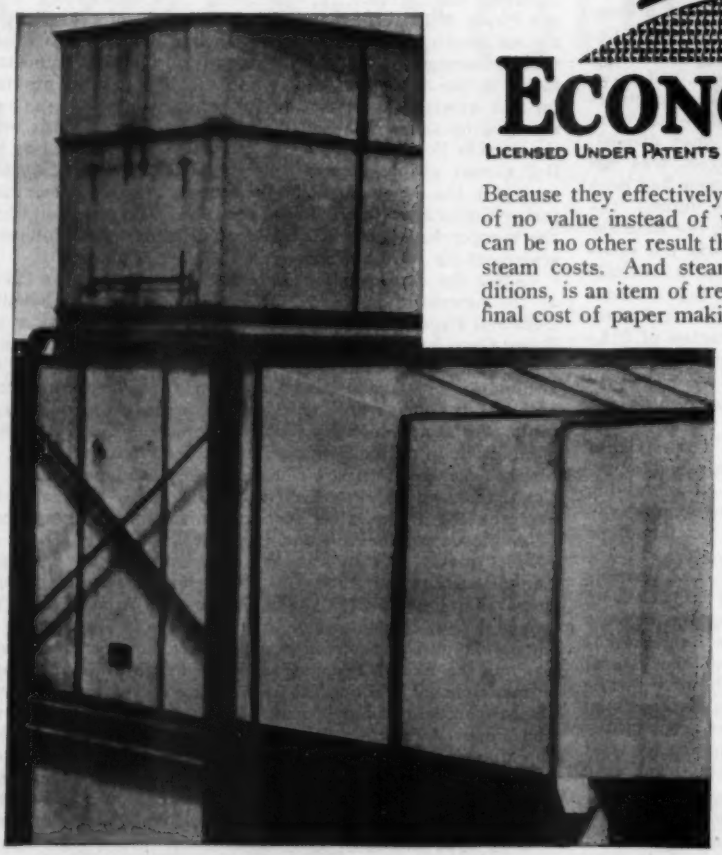
Lowered Operating Costs Must Result

For Any Mill—New or Old—That Can Utilize

BRINER

ECONOMIZERS

LICENSED UNDER PATENTS OF E.A.BRINER AND JOHN E.ALEXANDER



Because they effectively produce needed heat with waste vapor of no value instead of with steam of considerable value, there can be no other result than a substantial reduction in prevailing steam costs. And steam cost under present competitive conditions, is an item of tremendous importance in determining the final cost of paper making.

Now Is The Time To Plan For Your Requirements

There is no standard system applicable for all mills. A survey of your particular situation and requirements is necessary in order to provide maximum results. Let us make a survey of your situation now, so that necessary installations can be made before cold weather sets in.

Our nearest office will gladly show you what has been accomplished for mills similar to your own. This information should prove helpful to you.

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NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

ada, and more than 9 per cent of the entire world's output, is a consolidation of five large newsprint manufacturing companies. The principal properties are Belgo-Canadian mill, St. Maurice mill, Laurentide mill, Port Alfred mill and Wayagamack mill. Each property is a self-contained manufacturing unit, thoroughly efficient in every respect. All of the five mills have facilities for making their own groundwood and sulphite. The Wayagamack division, in addition to manufacturing newsprint, owns and operates one of the largest kraft paper mills in the world. The mills are situated at Shawinigan Falls, Grand'Mere, Three Rivers (2 mills) and Port Alfred, all in the Provice of Quebec, and the three latter are at tidewater, which constitutes an important advantage in making ocean shipments. The Corporation has other important interests and is provided with low-cost power, each mill being situated close to a large hydroelectric development. Its timber areas embrace more than 21,600 square miles, and are estimated to contain approximately 90,000,000 cords of pulpwood. Without reforestation, this is sufficient to last more than 70 years at full capacity production of 2,900 tons of newsprint and other paper daily.

Lord Rothermere, who is president of Anglo-Canadian, is to become a director of Canada Power and Paper Corp. He has been prominent in British affairs for many years and is well known in Canada and the United States as a publisher and newspaper proprietor, as well as through financial and industrial activities in other directions.

It is felt that the association of Canada Power and Paper Corp., as the largest of the Canadian newsprint enterprises, with this leading British publishing organization will prove of great advantage. In uniting the Rothermere and Holt-Gundy interests, the merger brings together two of the most important financial groups in England and Canada, thus strengthening materially the British influence in the largest manufacturing industry of the Dominion.

St. Lawrence Corp. Details Arranged

Containing the final details of the exchange of shares of St. Lawrence Corp., Ltd., letters were sent forward last month to shareholders of St. Lawrence Paper Mills, Brompton Pulp and Paper Co., and Lake St. John Power and Paper Co. These letters carried instructions to shareholders regarding the turning over of their shares for the stock of the new company, St. Lawrence Corp. All the various legal details have been arranged, it was stated. Various large holders of stock of the constituent companies had already turned in their securities for exchange, thus giving effect to the amalgamation of the three firms and placing control with St. Lawrence Corp., through common stock ownership. It was anticipated by the banking interests that substantially all of the holders of the smaller blocks of shares would exchange their holdings within a week or two after receipt of the letters.

This brings to a conclusion one of the major newsprint consolidations in Canada in recent years, the three constituent companies representing a daily productive capacity of 1,000 tons of newsprint, 100 tons of kraft and 70 tons of boxboard. Freehold and leasehold timber lands, waterpower, real estate, buildings and equipment, etc., of the new organization, less reserves for depreciation and depletion, amount to more than $49,000,000.

The management of the corporation believes that the earnings of the constituent companies will be substantially increased as a result of unified operation. It may be assumed that with the completion, or substantial completion, of the exchange of shares the management will proceed forthwith to give effect to operating economies made possible by the consolidation.

Administrative and sales offices of Price Bros. and Co. and its subsidiary companies are now located in Price House, the company's new 18-story building in Quebec City. The extensive Price interests in lumber, newsprint, and insulating board are thus housed in a new structure especially built for their needs, with every facility for the prompt and efficient despatch of business. The building is of fireproof construction, faced with limestone, and is thoroughly modern in appointments throughout.

Percy B. Wilson

Quite a shock was caused last month in newsprint circles by the unexpected death of Percy B. Wilson, chief executive officer of the Newsprint Institute of Canada, who had been in robust health up to the time of his recent operation. He was widely know in pulp and paper circles, not only in Canada, but in the United States as well. In 1913, he came to Canada and immediately became engaged in this field. In 1927 he became secretary and chief executive officer of the Newsprint Institute of Canada, which post he held at the time of his death.

Mr. Wilson was born in London, England, the son of James and Clara (Bateman) Wilson. He was educated at Huntingdon House School, Teddington, and began his business career as a chartered accountant. In 1891 he left England to become financial manager of the St. Augustine Diamond Mine, Ltd., at Kimberly, South Africa, where he remained until 1894, when he returned to England until 1913, in which year he came to Canada.

His activities here began with work as secretary and director of the Forest Mills and British Columbia, Ltd., at Revelstoke, B. C., shortly after his arrival. In 1914 he became comptroller and director of the Spanish River Pulp and Paper Mills, at Sault Ste. Marie, and later he was made vice-president. In January 1917 he was elected president of the Canadian Pulp and Paper Association. He was also vice-president of the Fort William Paper Co. (now a division of Abitibi Power and Paper Co.), director of the North American Securities, Ltd., president of the Canadian Forestry Association, and in 1927, he accepted the position with the Newsprint Institute of Canada, moving to Montreal and established his residence in Westmount.

At the time of his death Mr. Wilson was also chairman of the newsprint section of the Canadian Pulp and Paper Association and a director of Abitibi Power and Paper Co.

Mr. Wilson is survived by his widow, two sons, and two daughters.

Shawinigan Begins Large Power Development

Last month Adrien Beaudry, K. C., chairman of the Quebec Public Service Commission, signed the Certificate of Public Necessity and Convenience, the last formality connected with the upper St. Maurice River hydro-development at Rapide Blanc, now being undertaken by the Shawinigan Water and Power Co. The certificate grants the petition of the company, but reserves rights secured from the Government by other companies in regard to logging, etc.

Rapide Blanc is but one of several hydro-developments to be undertaken over a long stretch of the upper St. Maurice controlled by the Shawinigan Water and Power Co. under a 75-year emphyteutic lease entered into with the Quebec Government. That stretch reaches from the confluence of the St. Maurice and Manouan rivers down to the point where the line dividing Dumoulin and Vallieres townships crosses the main stream. Under the terms of the lease, the company is obliged to commence the first development on or before July 1, 1930, to develop at least 100,000 hp. by July 1933, and to expend at least $10,000,000. Among the several rapids capable of producing hydro-power, the company selected Rapid Blanc as the first development. According to figures it cited in its petition to the Public Service Commission, the approximate head at Rapide Blanc will be 110 feet. The original installation, it is estimated, will produce 160,000 hp. and the original estimated cost is $18,019,800. With the complete installation, the estimation of production is 240,000 hp. and the estimated cost of the development when complete $20,019,800. Power from that development would thus cost the company around $83 per horsepower. Production is expected to commence in the fall of 1932.

The stretch of the upper St. Maurice covered by the lease in question, which runs for 75 years from June 22, 1928, holds, in addition to Rapide Blanc, the following waters open to hydro development: Rapide Trenche, Rapide Sans Nom, Rapide des Coeurs, Rapide du Lièvre and Rapide Allard. As soon as 75 per cent of the primary power developed at Rapide Blanc shall have been disposed of, or at the direction of the

NORTON PULPSTONE with cement center now furnished in all sizes . . . . simplified construction . . . . all the Norton features . . . .

Norton Company - - Worcester, Mass.

Canadian trade now supplied from Canadian plant

Grinding Wheels
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NORTON
PULP STONES

Refractories - Floor
and Stair Tiles

Lieutenant-Governor-in-Council, the company is held to begin construction of the second development, the selection of the site being left to the company. Likewise, when 75 per cent of primary power from the second development shall have been sold, the third must be begun. It is stated that, should further surveys show the desirability of developing fourth or additional developments in the stretch of waters, that shall be at the direction of the Lieutenant-Governor-in-Council, but only when 75 per cent of power from developments already completed shall have been contracted for.

On the total development, as a whole and including transmission lines, the company, by lease, must expend at least $25,000,000. According to estimates given by the company to the Commission, when the stretch of the St. Maurice in question is under complete development, production will reach 1,208,000 horsepower, while the estimated cost of the total installation may go to $94,500,000.

Machinery Firm Reorganizes

A Dominion charter has been granted to Sherbrooke Machineries, Ltd. The new company, of which Arthur J. Connor is president and Claude L. Spafford is managing director, is a more completely Canadian organization than the old company, and will carry on the business of Sherbrooke Machinery Co., Ltd., which has been prominent in the pulp and paper industry since 1908.

The management and policies will continue to be those that have won confidence in "Sherbrooke" products. The same lines will be manufactured and new designs, developments and improvements will be made as opportunity offers. Among the equipment and services made and rendered by Sherbrooke Machineries, Ltd., are deckers, wet machines, coarse and fine screens, washers, knotters, tailings screens, Warren calender feed doctors, repairs and rebuilding of machinery, design and building of special machines and building of apparatus and equipment to customers' designs.

The Montreal office of the Lake St. John Power and Paper Co. has been moved from the Drummond Building to the Canada Cement Building, Phillips Square, Montreal.

T. J. Mullen, who has been connected with the pulp and paper industry in Canada for many years, lately left his position as purchasing agent of Canada Power and Paper Corp. at the Belgo Division, and is now manager of the Eastern District for the English Electric Co., Ltd.

The new newsprint mill of the James Maclaren Co., at Masson, is expected to commence operations some time this month. The mill will have two 125-ton machines. The power for the mill will be provided by the company's own hydro-electric development at High Falls on the Lièvre River, where the dam has already been completed. Twenty-five cases of expropriation of land affected by flooding have been dealt with before the Public Utilities Commission.

Lieutenant-Colonel J. H. Price, president of Price Bros. and Co., was elected president of the Ex-Cadet Club of Canada at the annual meeting held at the Royal Military College, Kingston, on May 31st last.

New General Manager for Canadian Paperboard

David F. Robertson has retired from the position of general manager of Canadian Paperboard Co., which position he had held since that company was organized. It has been for some months in the hands of a receiver, but Mr. Robertson had continued as general manager. The receiver of the company hopes to arrange for a reorganization of the company, but has at present no plans definite enough to announce.

Mr. Robertson is one of the ablest managers in the paperboard field. It is understood that the factors which led to the receivership for the company were in no sense due to his management, but to the long-continued condition of over-

Biggs erecting crew installing 14 ft. rotary digesters. Photograph made at one of the plants of the Hinde & Dauch Paper Company, whose headquarters are in Sandusky, Ohio. This company has more than forty Biggs rotaries in service.

Call the Biggs Roll!

Numbered among the users of Biggs Welded and Riveted Digesters and Cooking and Bleaching Equipment are some of the foremost manufacturers in the paper and allied industries. For example:

The Celotex Company,	New Orleans, La.
Hinde & Dauch Paper Co.,	Sandusky, Ohio
National Biscuit Co.,	Marseilles, Ind.
Ball Bros. Co.,	Noblesville, Ind.
The Harriman Co.,	Harriman, Tenn.
River Raisin Paper Co.,	Monroe, Mich.
John M. Heald Co.,	Lynchburg, Va.
Massasoit Manufacturing Co.,	Lake Charles, La.
Pequannock Valley Paper Co.,	Butler, N. J.
Sylva Paper Board Co.,	Sylva, N. C.
Consolidated Water Power & Paper Co.,	Appleton, Wis.
Ola Sugar Co.,	Hilo, Hawaii

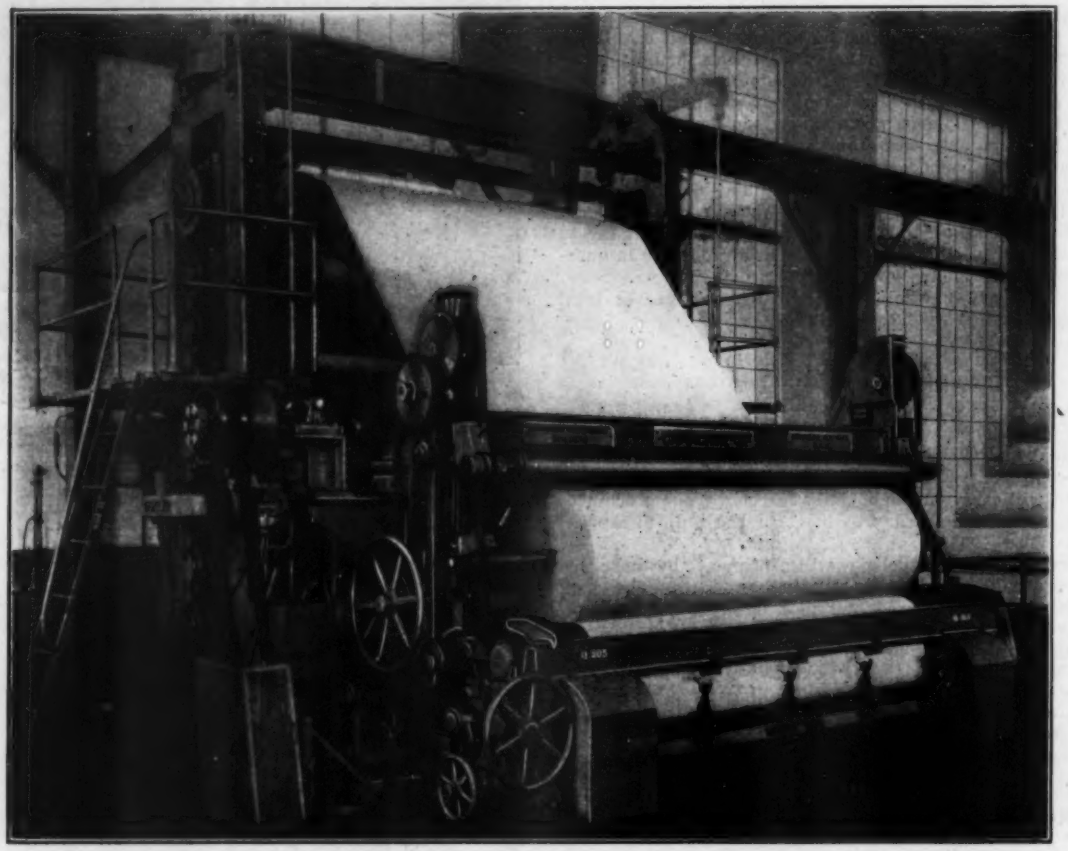
Such concerns do not spend their thousands lightly for equipment, as one puts your coat on and off. They do not sign and mail their purchase orders until thorough investigation has convinced them where they can get what they need at the right price. Nor do they return to the same source of supply unless their expectations are abundantly realized.

Biggs is proud of the clients listed above. We offer you the same service springing from more than 40 years' acquaintance with every kind of steel plate construction; the same faithfulness to detail, as well as the same familiarity with the swing and scope of your project,—that should place you, too, among our valued friends.

We'd be pleased to send you "Unusual Steel Plate Construction," our newest folder.

The Biggs Boiler Works Company
East Buchtel and Case Avenues, Akron, Ohio
New York Detroit Chicago

BIGGS ROTARIES *for years of dependable cooking and bleaching...*



IMPROVED CALENDER WINDER

No loss of production Cameron Winders installed at weekend

THE new Super Calender Winder, Camachine 48 Model 9, has been built with one important object in view and that is the production of practically faultless rolls of super calendered paper. This machine provides for the feeding of the web to the calender, rewinding it into rolls, passing the web through two or more times if desired and finally trimming the edges and slitting the web into shipping rolls of any size called for.

CAMERON MACHINE COMPANY

61 Poplar St., Brooklyn, N. Y.

production prevailing in the paperboard industry, in Canada and the United States, which has brought a condition very like anarchy into the whole range of the business, and to correct which drastic measures have been resorted to.

Mr. Robertson's successor is S. R. Armstrong, from New York State, reputed to be an able manager and quite familiar with paperboard manufacture.

One of the trade papers recently published the statement that a record in reforestation had been made in Madison County, New York State, by planting 1,340,000 trees. This brought a communication from Ellwood Wilson, head forester of the Canada Power and Paper Corp., who says: "This is certainly a great achievement, but during the month of May of this year this company planted 1,631,481 trees, which is considerably below our usual amount planted; we will plant another two and one-half million trees during the fall season; and this company has for several years been planting from two to five million trees per annum."

ONTARIO

Abitibi Jottings

Announcement of definite plans in connection with construction of the proposed new power transmission line from Abitibi Canyon to the Sudbury district is being withheld pending the completion of arrangements for building the dam and power plant for the Hudson's Bay Power Co., subsidiary of the Abitibi Power and Paper Co. Although this matter also is awaiting a definite decision, it is understood that the 100,000 horsepower, which the Ontario Government has contracted for Sudbury district, will be turned over to the Hydro-Electric Power Commission through a switching station at Hunta. As the policy of the Hydro is to build its own transmission lines wherever feasible, there will be no contract awarded for the $3,000,000 job between Hunta and Sudbury. Meanwhile fears of a power shortage at Sudbury this year, arising from the scarcity of rainfall this spring, have been considerably allayed by recent rains. The water level in Wahnapitae Lake, which is Sudbury's chief power reserve, has risen rapidly and Hydro officials are of the opinion that there will be no occasion for anxiety.

All the district offices of the Abitibi Power and Paper Co. are now in Port Arthur in the large office building at the plant of the Provincial Paper Division, which was completed a year ago. The Woods Department office, which has been located in Fort William, has been transferred to Port Arthur, together with all the other district branch departments. The change was necessary because of the requirement of a central office serving all lake head mills of the company. It is reported that new additions are contemplated at the company's Provincial mill in Port Arthur on a large scale, but officials are not disposed to make any announcement at present.

At a meeting of the board of directors, held recently in Toronto, W. H. Smith, formerly secretary and treasurer of the company, was elected a director and assistant managing director. In this appointment, Abitibi followed the principle of recognizing the services of its long-term employees, Mr. Smith having been with the concern for the past 16 years. T. Broadhurst was elected secretary, L. B. Popham becomes assistant secretary, H. Young treasurer, and A. J. Cormack assistant treasurer.

The Steamer "Wahcondah," belonging to the Abitibi Power and Paper Co., was completely overhauled during the past season at Owen Sound, and special machinery was installed for the handling of newsprint. The "Wahcondah" will engage in the carrying of newsprint between Port Arthur and Chicago. Captain F. C. Moles, of Collingwood, is in charge.

Much valuable timber and pulpwood was destroyed by bush fires which raged in Northwestern Ontario during the last week of May and the first two weeks of June. Eighty

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Power Transmission
Is Dependent On —

Surface adaptability—strength—pliability and resiliency.

VIM has these properties to a superlative degree. Its greater surface adaptability allows complete conformation to the pulley surface. VIM takes hold of a pulley at lower tension.

These qualities . . . its greater strength, pliability, resiliency and surface adaptability are the reasons for VIM'S remarkable pulling power and longer life.

Men who solve power transmission problems will find valuable information in our pamphlet "4-Point Power Transmission"—now on the press. Write for a copy.

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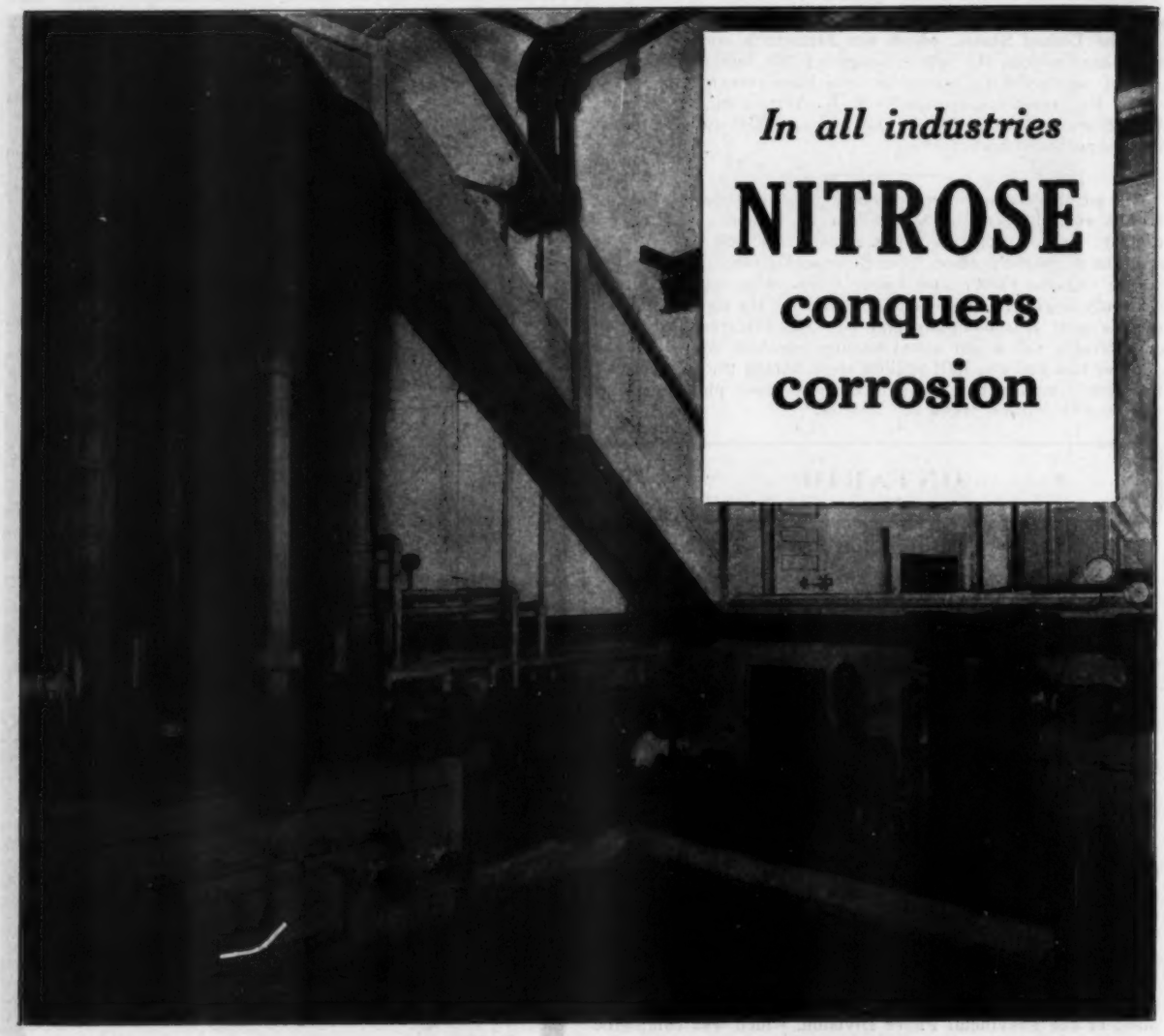
PHILADELPHIA, PA. And All Over the World



Accumulators and brine pumps of the American Ice Co., Kansas City, Mo., protected with NITROSE against corrosion.

Were life insurance taken out on machinery, artificial ice making equipment would surely come under the "dangerous occupation" classification. Brine, the ever present moisture, and the ammonia fumes continually threaten the surface of everything with which they come in contact. A never ending battle must be fought against upkeep costs that threaten to consume profits. Paint affords only temporary relief. The one real solution is that employed by the American Ice Company, Kansas City, Mo. —NITROSE.

Here, as in every other industry, NITROSE provides the solution to practically all corrosive problems. Leading manufacturers and public utilities use NITROSE as the one sure method of protecting property and profits.
NITROSE is a protective covering that spreads like paint, holds like a weld and forms an armor that corrosion cannot eat. Applied with no more preparation than wire brushing the loose scale. Can be used over wet, hot or oily surfaces.
Tell us the details of your own corrosive problems—let us show you how NITROSE can help you.

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NITROSE

miles west of Port Arthur, the railway hamlet of Larson fell a prey to the flames, several other small places were threatened and some laid waste, and for a time Port Arthur itself was seriously menaced. The Ontario Forestry Branch rushed men and equipment into the threatened zones as fast as it could, and at one time had nearly 1,000 men at work. Persistent rains in the latter half of the month effectually put out the fires and enabled the tired fire-fighters to take a well earned rest, but not until many square miles of pulpwood stands had been burned up causing damage estimated at millions of dollars. At one time, the situation was the worst that the Forest Protection Service has had to face since its organization.

Timber Limit Transaction Causes Lawsuit

Newton Edmeston, who was mayor of Fort William in 1922, was plaintiff in an interesting action which was heard last month before George A. Drew, Master in Chambers at Osgoode Hall, Toronto. Mr. Edmeston claimed that while he was mayor he was approached by the Late Lieutenant-Colonel Thomas Gibson, president of the Fort William Pulp and Paper Co. (now merged with the Abitibi Co.), to see if he could secure the Gull Lake timber limits.

Plaintiff said he was promised $5,000 and got $1,000 on account. He said that some time before 1928 he secured the desired limits from the Ontario Government for the Fort William Paper Co. Defendant denied that there was any agreement to pay $5,000, and, furthermore, said that even if there had been any such agreement, it was against public policy. The Master reserved his decision.

Peterboro County is rapidly coming to the fore as the center of a large reforestation scheme. The plan to reforest large tracts of the northern portion of the county was launched two years ago by the Ontario Forestry Branch, when the Province took over 35,000 acres in the northern townships. Last month operations were commenced on a large experimental demonstration farm in North Burleigh. Already 100,000 red pine have been set out. Various methods of planting are being used and the results will be closely watched. These experimental farms are being established throughout the Province, and this is the second in this district, the other being in Lennox and Addington.

A. P. Costigane, secretary-engineer of the Ontario Pulp and Paper Makers' Safety Association, recently made an inspection of the plants in Eastern Ontario. He said that improvements on the whole along the safety line had been made in all mills in the eastern division, and the prospects for the coming year, so far as accident prevention is concerned, are promising. At the Mille Roches plant of Provincial Paper, extensive improvements have been carried out and the mill is now in good condition. Accident prevention is being enthusiastically taken up, and recently efficiency certificates were presented to those who had qualified in first aid examinations of the St. John Ambulance Association.

The Midland plant of International Fibreboard Co., Ltd., has resumed operations after being closed down for nearly two years. The pronounced demand for the products of the company has made it necessary to start up the mill again. In March, 1929 one of the outbuildings and a certain amount of stock were destroyed by fire, but that did not retard getting the plant back into production.

A treaty in Canada or England does not confer rights upon subjects, so Justice Wright holds in a judgment handed down last month at Osgoode Hall, Toronto. Rights can only be conferred by the common law of England, or by legislation of a competent legislature. The case in point was an application by the Pigeon Timber Co., Ltd., to upset a decision of Judge McKay, of Thunder Bay, who held that the Arrow River and Tributaries Slide and Boom Co., Ltd., was entitled to charge the Pigeon Timber Co. tolls on logs floated down the Pigeon River. Appellant maintained that under the Ash-

Nash Hytor Vacuum Pumps are supplied in capacities up to and exceeding 5,000 cubic feet of air per minute at 20 inch vacuum. For maintaining the vacuum on flat boxes, suction couch and press rolls, felt cleaners and similar services.

For continuous operation with a minimum of attention

The simplicity and sturdy construction of the Nash Hytor Vacuum Pump assure years of trouble-free operation.

The Nash Hytor has only one moving part. This is a rotor which revolves without contact in the casing. Pressure is the same on both sides of the rotor. End thrust is eliminated. There are no rubbing surfaces. No pistons, valves or other wearing parts to require frequent adjustment and replacement.

Oversize ball bearings support each end of the rotor shaft. Bearings are housed in heavy, four-armed brackets, assuring perfect and permanent alignment.

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Experience in the manufacturing of wires for American and Foreign paper makers and the ever increasing use of Appleton Wires testify to their quality.

Looms of our own design, wire drawn in our own plant to specifications derived from exhaustive research, and carefully trained operators make this high quality possible.

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burton treaty they had a right to a free river. The Arrow company successfully contended that it had the right to charge tolls because it had installed certain improvements on the river.

Provincial Paper, Ltd., has constructed a new smoke stack at its Thorold mill, the work having been done when the plant was closed during the cleaning out of the old Welland canal by the Government.

Word was received early last month by Hon. Peter Henan, Minister of Labor in the Ottawa Government, that the wage dispute between the Backus mills at Fort William, Fort Francis and International Falls and the employees, numbering about 2,000 had been amicably settled.

J. T. McLellan, construction manager of the Backus-Brooks Co., who was in charge of the erection of the plant of the Great Lakes Paper Co., at Fort William, is now supervising the building of an insulite plant at Karhula, Finland, for the Backus interests. Mr. McLellan says that they are on the job trying to push it through so that manufacturing can be started this year. He adds that climatic conditions in Finland are much the same as in Northern Ontario.

The Don Valley Paper Mills, Toronto, have put in a plant for the manufacture of commercial cut cards, for which there is quite large demand in Canada, and which has hitherto been supplied by United States firms. This is the first Canadian paper manufacturing firm to take up the manufacture of this type of commercial cut and boxed cards.

A. N. Wold, safety director at the Backus-Brooks company's mills, recently prepared a blueprint which he posted in the various plants, showing the improvements throughout the years 1928-1929-1930, first three months in each case. Minnesota and Ontario Paper Co. has reduced its injuries from 70 to 31 in the first three months of the three above years, Fort Francis from 36 to 6, and Kenora from 19 to 6. All mills have a showing of 124 accidents for 1928, while in 1930 they showed but 43. The Great Lakes Paper Co. showed 8 for the same period of 1929, and 19 for this year's first quarter; but the employees numbered 1370 this year, against only 600 last year.

Richard H. Joyce, formerly sales manager for Stauntons, Ltd., wallpaper manufacturers, of Toronto, has been appointed vice-president of the Don Valley Paper Co., of Toronto, of which Norman E. Wainwright is the president.

◆ BRITISH COLUMBIA ◆

The first sheet of paper was turned out last month at the new $750,000 plant of the Westminster Paper Co., at New Westminster. A commercial sheet was produced in ten minutes. President R. F. Arnett was present, together with the directors, as the plant resumed operations again after having been burned down last July. Arrangements have been made for an official opening, and in the meantime production of paper will proceed and adjustments of machinery made.

Lower Earnings for Pacific Mills

Pacific Mills, Ltd., with head office in Vancouver and mills at Ocean Falls, did not enjoy as prosperous a year in 1929 as in the previous one, and profits showed a considerable reduction. The decline was due largely to a shortage of water which necessitated the shut-down of three machines for several months. Net earnings, after depreciation, depletion, interest and taxes, amounted to $356,562, down from $954,961 in 1928. After deducting dividends on preferred stock of $119,397, the balance was carried to surplus. With

The LEWELLEN
Variable Speed
TRANSMISSION
in the
DRIER FIELD

Yarn driers
Paper driers
Veneer driers
Enamel driers
Soap driers
Fish driers
Coated Rock driers
Milk driers
Paint driers
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Ask Lewellen to solve your control problems
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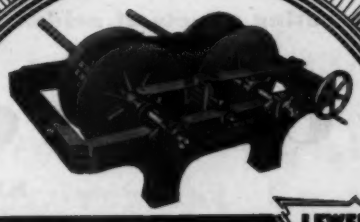

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KENWOOD TANNED FELTS FOR GREATER SPEED

The new Kenwood Felt introduces a marked improvement over ordinary performance through a development in yarn construction which, while not adding to the size nor weight of the yarn, provides factors of increased openness and greater strength that permit of higher speeds.

This development augmenting the advantages of tanning, set Kenwood Felts in a class apart, not only in their adaptability to higher speeds but also in their length of life, the smooth surface they provide and their economy in felt cost per ton.

Kenwood pioneered the one sided board felt. This same research service developed and perfected the Kenwood Tanning processes that protect the felt from the deteriorating effects of acids.

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KENWOOD MILLS, ALBANY, N. Y.

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KENWOOD

WOOL PRODUCTS

the addition of adjustments totalling $15,524 to Provincial income taxes, surplus carried forward amounted to $5,774,499. Current assets dropped from $3,845,365 to $2,982,626, while current liabilities increased from $608,832 to $724,045.

The directors' report states there had been no improvement in prices for the company's products, but volume of business sufficient to keep the plant in operation to capacity is anticipated during the current year. During the year the sum of $1,386,520 was expended in additions and improvements to plant, which consisted chiefly in the rebuilding and replacement of old facilities acquired from the Ocean Falls Co., with modern buildings and equipment, also in the installation of additions to the steam power plant. These capital expenditures are expected to effect further economies in operation of the mills and will permit of full production at all times regardless of water power conditions.

The company is at present engaged in extending its operations through the erection of a paper specialties plant at Vancouver.

The proposed tax on fuel oil drawn up by the British Columbia Government may perhaps never be enforced. This tax was recently strenuously protested against by pulp and paper mills, apartment house owners and railway companies. The inauguration of the tax has been postponed until after a conference at which Premier Tolmie is to confer with a number of experts as to the drawing up of some other means of assisting the coal industry.

A comparatively recent addition to British Columbia's industries, and one that is filling a long-felt need, is Canadian Boxes, Ltd., with offices and plant at Vancouver. Manufacturers of corrugated fiber containers, it is a Vancouver company, using 100 per cent British Columbia materials, the corrugating medium being supplied by the Pacific Mills, Ltd., and the test board by the Sidney Roofing and Paper Co. of Victoria. The company is also equipped to print customers' advertising and trademarks on its products in two colors, the sheets being fed through a special printing press after corrugating and lining. While a Vancouver company, Canadian Boxes is an offshoot of Hygrade Corrugated Products of London, Ont., which company formerly supplied this field. The plant is built of hollow concrete blocks; it is a single-story structure, having a floor space of 23,000 square feet, and provision has been made for the addition of another story when conditions warrant.

◆ NEW BRUNSWICK ◆

Dalhousie Mill Being Enlarged

As a proof that International Paper considers that the worst has been passed in the depression which has affected the newsprint industry for the last couple of years, it is already proceeding with the doubling of the capacity of the Dalhousie mill. Already two new 226-inch newsprint machines, similar to the ones which are already in operation, have been ordered from Pusey and Jones, of Wilmington, Del.

The two machines at the Dalhousie mill, which having a combined rated capacity of 250 tons of newsprint daily, are already turning out well over their normal production though they have been but a few months in operation. They recently turned out 283 tons of salable paper in one day, and the highest daily average for a full week's production stands at present at 267 tons a day.

In order to meet the power demand of the increased production at the Dalhousie mill, installation of the fourth 20,000 hp. generator at the Grand Falls plant of the Saint John River Power Co. is being proceeded with. The generator has been ordered from the Canadian General Electric Co. There are three similar generators in operation at the present time, and when the fourth has been started up, the plant will be delivering 80,000 hp. which is the full capacity for which it was designed.

Leadized Piping in mill of
Kalamazoo Vegetable Parchment Co.
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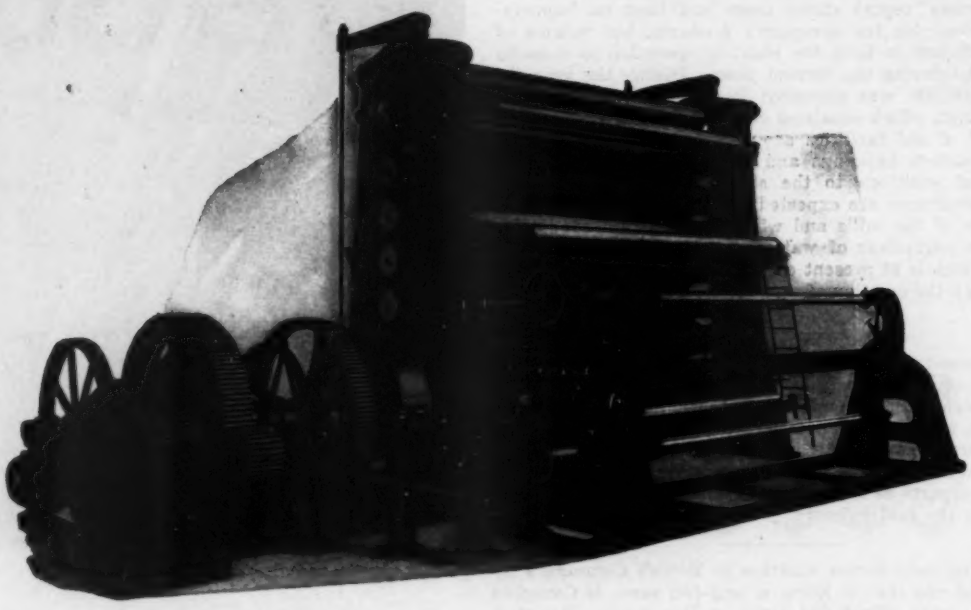

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The HOLYOKE MACHINE COMPANY

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It is expected that the annual statement of the Bathurst Power and Paper Co., which will be issued in the near future, will show that the past year has not been entirely favorable for newsprint production. In this respect the operations of the Bathurst company have not differed from those of other producers. It is understood that the report will show that the company during the past year added an additional newsprint machine, bringing the daily capacity up from 65 to 130 tons. Furthermore, an additional 5,000-hp. unit was installed in the company's power development, bringing the capacity to 15,000-hp.

Marked by the bringing into operation of the new bleached sulphite mill of the Restigouche Co., a subsidiary of Fraser Companies, at Athol, near Campbellton, the expansion program of Fraser Companies is completed for the present. Together with previous units and the Madawaska sulphite, bond, waxing and catalogue paper mill, this plant properly balances the company's manufacturing capacity, and its benefits should be reflected in future operations of the parent company.

❖ NOVA SCOTIA ❖

Running Above its Rated Capacity

At the annual meeting of the Mersey Paper Co., Col. C. H. L. Jones stated that full production was achieved four months after operations commenced, and that although equipped for the production of only 250 tons of newsprint a day, an output of approximately 275 tons a day had been reached on certain days during its period of operation last year.

The business consideration largely dealt with the mill's construction, covering the year up to December 1929. It was pointed out that every forecast figure of the past as to the cost of the mill and its profits had been borne out. The cost of the mill was within the original estimate and results since the mill commenced operation warranted further development and expansion. Plans for the enlargement of the mill and for increased production were considered, but no definite decision was arrived at.

The original board of directors was elected without change. It is composed of the following: Col. C. H. L. Jones, J. McG. Stewart, K.C., Frank Stanfield, M.P.P., John C. McKeen, Col. J. L. Miller, W. H. Chase and J. P. Douglas.

In view of conditions which still reign in the lumber industry, due mostly to the competition from the Pacific Coast and Europe, for the fifth year the Quebec Government has decided to reduce once more the stumpage dues on timber cut last year. The reduction is quite considerable, averaging 30 per cent or so, as compared to the dues which could be levied under previous orders-in-council. This affects the cut of 1929-30, but it is provided that this lumber must be manufactured in Canada. The reduced rates apply only to timber cut for saw mill purposes, and returns from Quebec lumber companies must be accompanied by a sworn declaration that the timber is used as sawn lumber only.

The first annual report of Firstbrook Boxes, Ltd., shows net earnings for the year ended January 4, 1930, of $170,167. After deduction of various charges for moving the plant, depreciation, bond interest and income tax, the company earned $8.34 per share on the preferred stock, and after paying preferred dividends there remained $41,407 applicable to the 60,000 common shares outstanding.

Dominion Engineering Works, the well-known builders of pulp and paper mill machinery, has secured the contract for the turbine installation at the Chats Falls development on the Ottawa river. It is estimated that the value of this contract is in the neighborhood of $700,000, which should be an excellent addition to the company's log of business.

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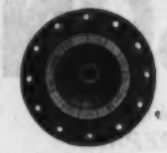

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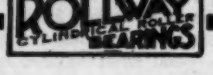

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NEW ENGLAND

Stop-Off in Transit Terms Granted by B. & M.

One of the greatest achievements of the New England Paper & Pulp Traffic Association since it has been guiding the traffic and transportation affairs of some twenty-five New England paper mills, was announced recently when the Boston & Maine R. R. published stop off in transit terms. The association has been working for this many years and has finally convinced this carrier of the wisdom of the move. Fear that revenue would be lost in greater degree than tonnage would be gained has been behind the hesitancy. At any rate, the new provision which goes into effect about August 25 next will apply on cars loaded at a B. & M. station to any part of the minimum carload weight. Said cars may then be moved to a second station on the same carrier provided said second station is in a normal routing to ultimate destination.

At the second point the car will be filled to minimum carload quantity, twenty-four hours' time being allowed for the second loading and a charge of $10 per car charge for the service. It will permit merchants in the west to receive consignments from several New England mills and obtain the carload rate from the first point, instead of the l.c.l. rate on both shipments which frequently is so high as to preclude the movement entirely. In fact, New England mills have felt the loss of small orders in trunk line and c.f.a. territory often because merchants could not stock a full car nor could they compete with more favored producing areas when the l.c.l. rate from New England applied.

It is understood that the Brown Co., at Berlin N. H., will rebuild its partly destroyed fiber conduit plant which was recently damaged to the extent of about $30,000 by fire.

Karl Ways, paper sales representative for New England connected with the Boston office of the Brown Co., has accepted an offer of the Nashua River Paper Co., and becomes sales representative of that firm in this territory. T. K. Davis has been retained by the same company earlier in the year. The Nashua Co. has thus replaced the personnel which retired from the business early in the year.

Carl F. Werner will cover considerable of the territory in New England for the Brown Co. in place of Mr. Ways resigned. Mr. Werner has been with Brown Co., for some 12 years or more. E. O. Hanson formerly chief clerk of the Boston office is also sales representative on paper for the Boston office which has New England sales under its jurisdiction. Dr. Richard L. Rice is regional sales manager in charge of the Boston office.

Henry L. Savage formerly connected with the Boston office of the International Paper Co., has been transferred to New York where it is understood he is in charge of the white paper, free sheet department.

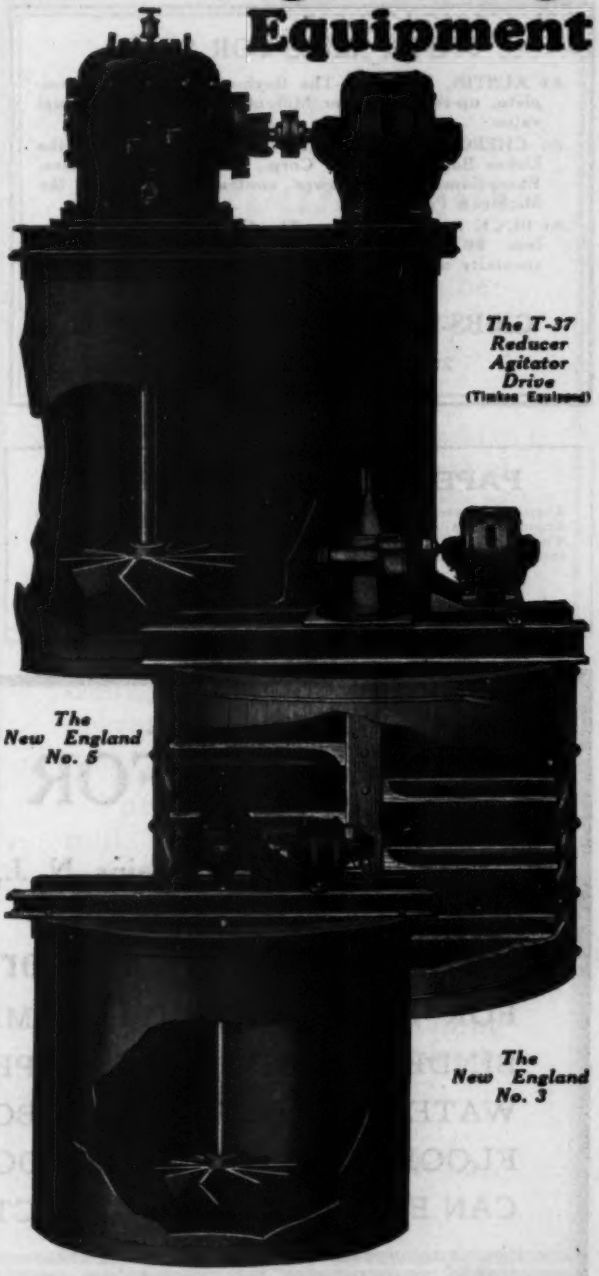
James O'Daniel who has had a lengthy and varied experience with mills and merchants, his latest connection being with John Carter & Co. of Boston, has become associated with Asaph Churchill, mill agent and merchant at 201 Devonshire street, Boston.

The South Bay Paper Stock Co. of Boston has moved from New Haven R. R. siding and larger facilities.

The Driscoll Paper Co., Morriss F. Driscoll president, recently incorporated here, has acquired a warehouse in South Boston where the company will deal in used paper boxes, corrugated and fiber shipping cases and mill seconds in these

for fillers—sizes—colors use

New England Agitating Equipment



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2—8 ft. Buffalo blowers.
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lines. Mr. Driscoll will also carry a paper stock business in which he has had a lifetime of experience. The company is located at 122 West First street South Boston.

Scarcity of Lumberjacks

Although there are probably between 25,000 and 50,000 men out of work in Boston, paper and pulp men in Northern Maine seek vainly for 2,000 woodsmen to cut, haul and drive logs. The scarcity of labor in the Pine Tree State was never so great as it is in the year of business depression with hundreds of thousands unemployed throughout the East. The reason seems to be that some person or persons succeeded in agitating through Congress for the restriction on temporary entrance of Canadian laborers. It was claimed that the woods help in this case did not come under the specification of "skilled labor." To the Maine operators, however, they are highly skilled in view of American labor to fill the bill. The Massachusetts Labor Commissioner certified some 400 men for work in the woods and scarcely 70 of them were found suitable. The labor commissioners of other states require that the pulpwood operators shall furnish expenses to prospective help which they find economically impossible in view of the large percentage which are found on arrival to be unfit and the many more who quit after a few days of the hard woods work.

The Canadians and especially the French Canadians are at home felling, hauling and doing general labor about timber operations. It is bred in them from childhood and there are none better. The folly of the immigration ruling is so apparent that it scarcely needs stating it would seem advisable to have it repealed. The American lumberjack is a vanishing entity.

A new Norwegian motor ship, the Larviksfjord, has started on her first trip in the wood pulp carrying service from Norway to New England with a cargo of 900 tons of chemical wood pulp.

It is reported in the local trade that German and Swedish pulp producers are seeking new distributing connections in this territory for groundwood and sulphites.

The Colgan Sherman Corporation of Palmer, Mass., has been chartered with rather all-embracing purposes according to papers of incorporation. They may under their charter "develop, manage, sell or dispose of real estate in Palmer known as the village of Thorndike, also buy, sell or deal in paper, paper products, sheets or paperboard, manufacture, buy, sell or deal in paper, paper products and paper boxes. The capital stock is $50,000 and the incorporators are: Francis R. Sherman of Palmer, James W. Colgan of Pomfret, Conn. treasurer.

Defoliation of Maine spruce trees varying from 30 to 50 per cent in some sections of the Maine coast was reported by State Entomologist Dr. H. B. Pierson after a thorough examination of spruce by his department. The injury is caused by the spruce web worm, a European invader. Sprays have been but little avail so far and parasites are being experimented with to combat the pest.

Carroll Draper has been appointed to fill the vacancy caused by resignation of P. H. Booker, for 12 years assistant manager and for six years sulphite superintendent of the Oxford Paper Co.

Massachusetts State Department of Labor and Industries shows in its latest report of employment conditions in Massachusetts that the paper and pulp industry is relatively better off, judging by May figures, than almost any other leading manufacturing line. Operations in May actually improved slightly judged by employment in twenty-seven paper

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and pulp mills reporting as compared with April, the only industry to show such a trend. It is expected, of course, that June will show a decline, but still less severe than in textiles, shoes, machinery, and metal.

Fred Clark Joins Skinner & Sherman

After August 1, 1930, the firm of Skinner, Sherman & Esselen, Inc., Boston, Mass., will become Skinner & Sherman, Inc., Dr. G. J. Esselen having withdrawn by mutual consent. Recently the organization has extended its activities by combining the consulting engineering practice of Frederic C. Clark, of South Manchester, Conn., with its own business.

Mr. Clark has had a broad and varied experience and is well known in the pulp and paper industry. He has held a number of important positions in his progress toward his present standing in the industry. He was for several years chief of the Paper Section of the Bureau of Standards at Washington from which position he went to the American Writing Paper Company, Holyoke, in charge of the department of technical control. Later he was vice-president of the Pejepscot Paper Company in charge of manufacturing and still later secretary and production manager for the Hawthorne Paper Company. He is a charter member of the Technical Association of the Pulp and Paper Industry, and has organized and taken an active part in many of its important committees.

Burton G. Philbrick, who for many years has been in charge of its bacteriological department, and Mr. Clark have been elected vice-presidents; and Wilder A. Chapman in charge of its analytical and metallurgical work, has been elected secretary.

A new power plant is to be built shortly for the Hollingsworth & Whitney Co., presumably at its Winslow, Me. mill. It is to be of very latest design and will be fired by stokers. The company has given long consideration to various methods of boiler firing and has decided upon stokers as most satisfactory for its purposes. Contracts have not been awarded at this writing.

The Rice Barton & Fales Co., of Worcester is one of the three or four New England foundries out of some 300 which are operating at or near capacity. This company recently inquired for 600 tons of pig iron for third quarter requirements. It is building several machines for New England mills the most notable being those for the Maine Seaboard Paper Co.

H. S. Brown, manager of the wrapping department of Carter Rice & Co., Boston, retired after 30 years' service on July 1. A Telechron clock was presented by his associates. He is succeeded by Harry Ellis.

Spencer M. Holden, sales representative of Crocker McElwain Co., who was seriously injured in a taxicab accident in Philadelphia earlier in the year, is recovering. Howard Casey, sales representative of the Hampshire Paper Co., is expected to leave for home next month after making a slow but sure recovery at Rutland Sanitarium.

The Mountain Mill Co., at Lee, Mass., is making extensive improvements in its beater and machine rooms which will increase the glassine and grease proof paper production by 25 per cent. Johnson & Wierk Inc., of New York are engineers.

The Boston Paper Trade Association held one of its usual joyful outings on June 10 at the Charles River Country Club, Newton, Mass., the fifth year that the association has enjoyed the facilities of this fine country club. W. Edwin Porter, of Cook Vivian Co., won the B. P. T. A. Championship Cup for a year. Frank Cummings, of Hollingsworth &

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Whitney Co. won two prizes but he finally got a first net in Class B. Roger Taft, of Hammermill Paper Co., won first gross in Class A. There were the usual sports on the program except baseball which was passed up because the number on the links left insufficient for a game.

Besides Hollingsworth & Whitney Co.'s new power plant, Oxford Paper Co., and St. Croix Paper Co., have new power plants under way.

Price cuts in jute and India twines were announced in Boston on the first of the month ranging from one to two cents.

The first cut in the price of kraft paper by the Brown Co. and the Claremont Paper Co. in several years took place during June when a cut of a half cent per pound to 5.50 in jumbo and 5.75 in counter rolls was announced. This is, of course, on No. 1 kraft paper.

SOUTHERN

Contract for the construction of a one-story, basement, 335x43-foot corrugated board plant machine room building for the Bogalusa Paper Co., Bogalusa, La., has been awarded to H. J. Cowgill, Bogalusa contractor, according to R. H. Laftman, vice-president and general manager of the company. The building will be of reinforced concrete and brick with a reinforced concrete foundation, and will be modern in every respect.

The Standard Paper Stock Co., with headquarters at Birmingham, Ala., has been incorporated under the laws of Alabama with a capitalization of $2,000. H. Braverman is president of the concern; Mrs. H. Braverman, vice-president, and Mrs. N. Kottelman, secretary.

Work of erecting the first unit of a series of plants for the Southern Kraft Corp., a subsidiary of International Paper Co., has been started at Panama City, Fla., on a tract of 150 acres. The initial capacity of the plant will be 200 tons daily with an ultimate production exceeding 400 tons. J. H. Friend, with headquarters at 466 Michigan Ave., Mobile, Ala., is vice-president of the company.

According to information received from Mobile, Ala., that city is being considered by the Champion Coated Paper Co., Hamilton, Ohio, as a site for a plant of the company. While the company is understood to have acquired a site at Tuscaloosa and also looked into the matter of possibly locating at Mobile, it has been declared through Logan G. Thomson, secretary and treasurer of the company, that no decision has been made as to the construction of the plant, estimated to cost $11,000,000, and that neither architects nor engineers have been selected. The location would be made, it is thought, because of the close proximity to timber lands. Facilities of the proposed plant would include all processes for converting the raw materials into finished products.

Hammermill Paper Co., Erie, Pa., announces the appointment of Southeastern Paper Co., Louisville, Ky. as a Hammermill agent.

Edward B. Cowles

Edward Boies Cowles, eldest son of the late David Smith Cowles, a former president of the American Paper and Pulp Association who was president of W. H. Parsons Company in 1911, passed away in his forty-fourth year on Sunday, June 8. For the past six years Mr. Cowles had been connected with the American Engineering Company, of Philadelphia.

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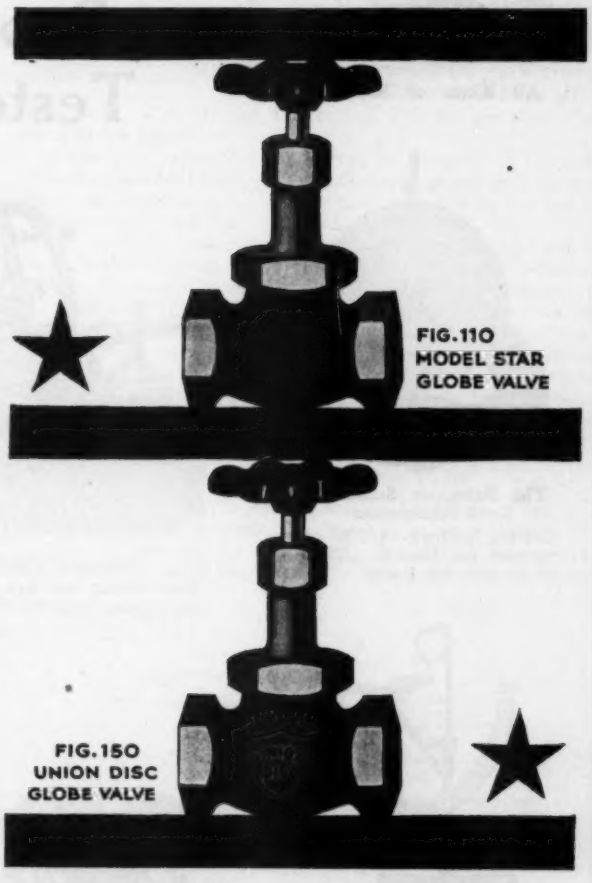

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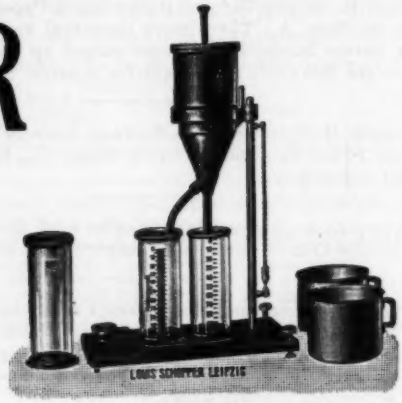

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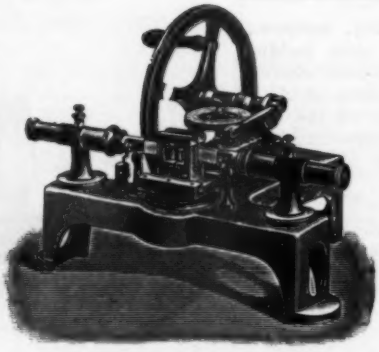


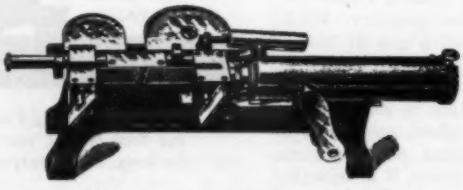
Schopper Folding Tester

The folding test has become standard for bonds, ledgers, and Kraft papers.

Schopper Strength and Stretch Tester

Small Piece Pocket Paper Scale

By weighing a piece 2 in. by 4 in., gives basis weight 25x38, 24x36, 22x34, 500 sheets.



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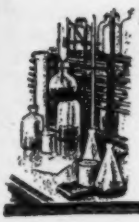
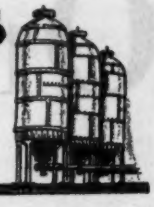


Technical Developments in the Paper Industry

Domestic and Foreign



The following abstracts are of the latest developments found in the foreign press and the domestic and foreign patent offices. Photostats and translations of complete articles and patents can be obtained at cost price.

Theory of Sizing of Paper

IT has been claimed that in sizing, the paper fibers always absorb aluminum ions and that the sizing is effected by free rosin independent of the acidity, aluminum hydroxide being detrimental to the sizing rather than improving it. Experiments are described which confirm and show that aluminum resinate, aluminum hydroxide, and free rosin are of the greatest importance in sizing, although free rosin and the aluminum ions in the fibers cannot themselves bring about sizing, while aluminum ions are of little or no importance. Thus lime-free ashless filter paper fibers take up almost no aluminum ions from alum solution, but the fibers can nevertheless be satisfactorily sized. Benzene extracts 82 per cent of the rosin used for a drawing paper made at pH equal to 4.8, the extract containing 81 per cent of aluminum resinate, that is the aluminum and rosin are chemically combined. H Roschier, Suomen Kem., volume 2, pages 48-54.

Carbonyl Groups of Lignin and Their Importance in Sulphite Digestion

THIS long article starts with the usual review of the literature on the subject. The authors carried out a large number of tests on the aldehyde character of lignin. Some of the interesting conclusions reached are as follows: The tests showed that the active carbonyls of hydrochloric acid derivative of lignin are closely concealed. The groups can however be revealed by splitting with acid in the presence of phenols and aromatic amines. It was shown that the sulphonation of the lignin in the solid phase, both in the wood as well as in the lignin isolated with the aid of hydrochloric acid, takes place without greater quantities of sulphite being absorbed in loose combination. The carbonyls of the solid ligno-sulphonic acid are therefore concealed for the most part.

When the lignin of the wood is not completely sulphonated and saturated, before the swelling action of the digestion liquor ceases, which means that sulphite disappears, then black cooks are unavoidable. The acidity of the digestion liquor remains constant during the digestion, as long as the swelling action of the sulphite is sufficient and gas is not released from the digester. The acidity of the liquor reduces at the same time that the gas pressure is released at the end of the digestion.

The quantity of loosely combined sulphur dioxide is reduced in the same measure as the content of bisulphite in the digestion liquor decreases. This is to be expected as the reaction is one that arrives at equilibrium. Equilibrium sets in due to the retarding action of the hydrogen ions on the decomposition of the bisulphite complex.

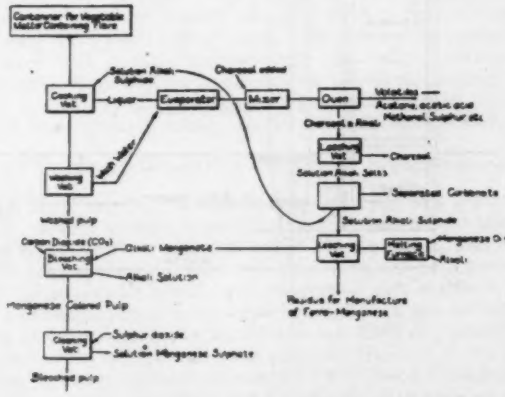
The change in color of the digestion liquor in sulphite pulp manufacture depends on the following conditions. When sufficient bisulphite ions are present in the digestion liquor, then the digestion liquor remains slightly yellowish in color and the pulp is pure white. The bisulphite which is combined with the active carbonyl groups of the ligno-sulphonic acid, exerts a protective action, as long as the additive combination of the bisulphite group is complete. This is possible when there is an excess of bisulphite ions. Intramolecular changes and association of the lignosulphonic acid, which are connected with the browning of the waste liquor, take place with the splitting off of the carbonyl bisulphite. The same reaction takes place with the solid ligno-sulphonic acid of the pulp simultaneously with the change in the lignosulphonic acid in the solution. As long as bisulphite ions are in excess, the pulp remains white, and sulphite is combined with its free carbonyl groups. The splitting-off of carbonyl sulphite is accompanied by a change of the color of the pulp from white into brown. This reaction is identical with the one that takes place in the liquor.

It was also found that the degree of digestion of the pulp containing a small amount of lignin, hence in the case of easy bleaching sulphite pulp, can be determined with the aid of fuchsin-sulphurous acid.

The luminous violet fluorescence of sulphite pulp and of waste sulphite liquor set in through the absorption of bisulphite by the active carbonyl groups of ligno-sulphonic acid. If the bisulphite is split off, then a change takes place in the ligno-sulphonic acid molecule, with the result that the luminous fluorescence is changed into a dark violet color, which can be changed back again into a luminous fluorescence by treatment with bisulphite solution. Hydro-sulphite has the same effect. E. Haegglund, T. Johnson and L. H. Trygg, Cellulosechemie, 1930, pages 30 to 38.

Manufacture of Paper Pulp

THE process has for its purpose the liberation of the fiber obtained from a vegetable source from encrustating materials. It consists in cooking the fibers in a solution of alkali sulphide only. The fibers are then washed and bleached



by subjecting them to a solution of alkali manganate. Carbon dioxide gas is simultaneously passed through the solution. Then the fibers are cleaned by subjecting them to the action of sulphur dioxide. A. M. Thomsen, San Francisco, Calif. United States Patent No. 1,758,896, filed Aug. 1, 1927.

Beating Paper Pulp

THE rate of increase of the degree of beating and the properties of the finished papers that are made from the pulp have been investigated for wet, air-dried, and hot-dried (100 to 110 degrees C.) sulphite pulps. For the same time of heating the degree of wetness is highest for wet pulp, while air-dried pulp is next in order. For both the same degree of wetness and time of beating, wet pulp gives papers of the highest

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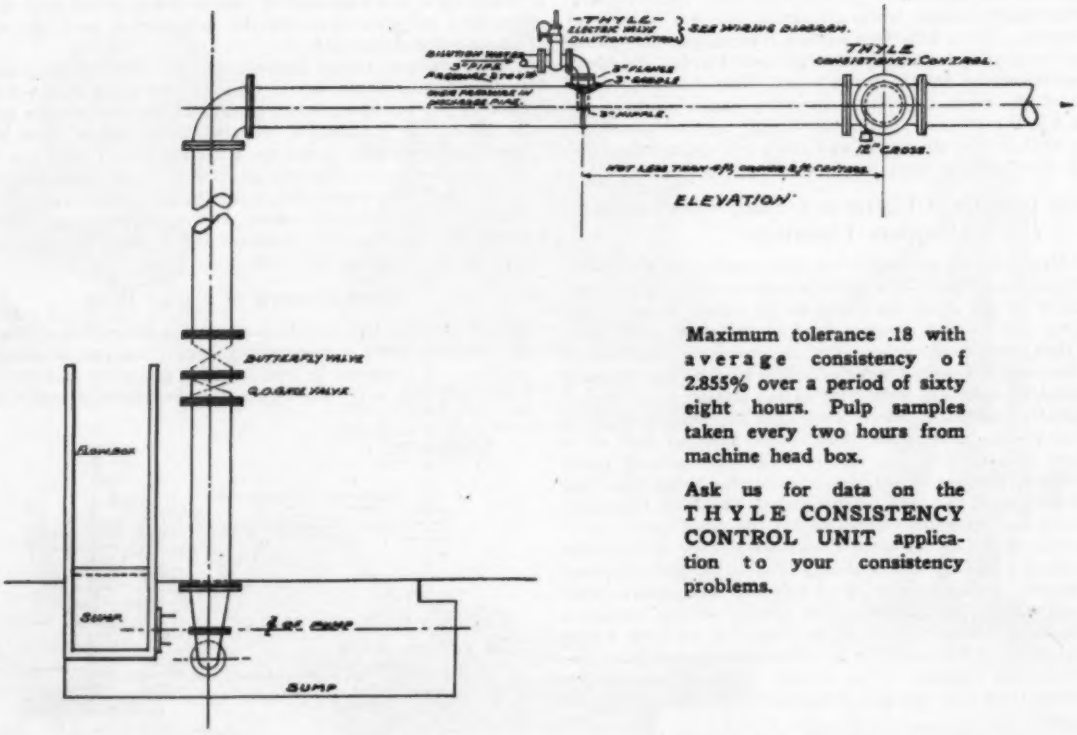

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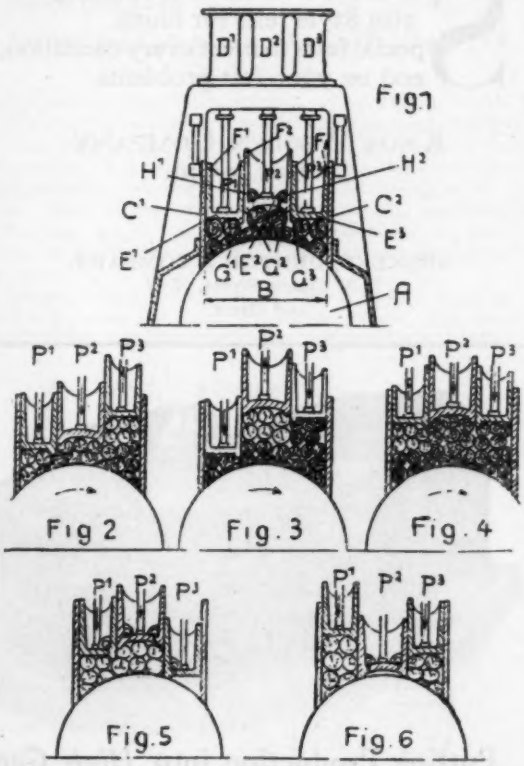
bursting strength and tensile strength, elongation, and relative transparency. Strength differences between the wet and the dried pulps are a maximum for sheets formed without beating. The high strength of the wet pulp paper formed without beating is ascribed to adhesive forces due to the colloidal state of the surface of the wet pulp fibers. Wet pulp suffers an irreversible colloidal change of fiber surface on drying. M. Nakano, Journal Cellulose Institute, Tokyo, Japan, 1930, pages 31 to 35.

Large Pocket Grinder

THE good results that have been obtained with the use of grinders with large pockets, grinders of the magazine type, led to the practice of building grinders with a number of small pockets arranged side by side. This did not give the desired results for the reason that it was difficult to regulate the pockets so that uniform grinding results were obtained and a mechanical wood pulp produced containing long fibers and no splinters.

The type of grinder which is shown in the accompanying illustration is built with large pockets which are divided into several smaller pockets by means of internal partitions. The pressure applied against the wood is effected by separate pistons in place of a single piston.



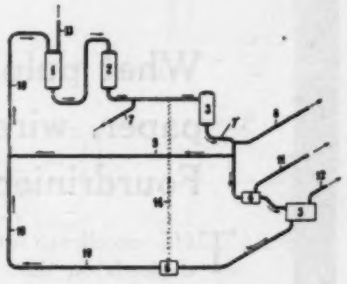
The large pocket (B) in the grinder is provided with adjustable side partitions (C^1) and (C^2). It is divided up into three smaller pockets, represented as (P^1), (P^2) and (P^3). The pressure applied to the wood in these pockets is applied in alternate manner and is either hydraulic, mechanical or electrical being effected by the pressure pistons (D^1), (D^2), and (D^3). By referring to the figure it will be seen that the three smaller pockets are formed by the pressure surfaces (E^1), (E^2) and (E^3) and the sides of the structure (F^1), (F^2) and (F^3), which are located tightly contacted one next to the other.

In the normal state the wood is pressed against the surface of the grindstone (A) in all three pockets. When wood has to be loaded into the pockets, the three pockets structures are lifted out one after the other and pressure is again applied after the wood has been charged into the pockets. The three phases of loading the pockets with wood are shown in Figures 2, 3 and 4. The loading is started at the right pocket, then the middle pocket and finally the end pocket. The hatched sections represent wood already in the pockets while the unhatched sections represent wood added. J. M. Voith. French Patent No. 672,070.

Evaporating Black Liquor

THE new process consists in subjecting the liquor to heat and pressure treatment so that a portion of the organic matter is precipitated in the form of carbon and pitch. Then the liquor is evaporated to dryness in order to recover the valuable organic ingredients that it contains, and the residue is subjected to dry distillation.

The accompanying illustration shows an arrangement for carrying out this process. The pulp digester is shown at (1), the diffuser at (2). The pulp is separated from the liquor in the latter apparatus. A high pressure tank is shown at (3), while (4) is an evaporator, (5) a still and (6) a tank used for dissolving and causticizing purposes.



The black liquor which is drawn out of the separator (2) is mixed with caustic soda through the pipe (7). Carbonaceous and pitch substances are separated from the conversion products of the black liquor in the high pressure tank (3), which leaves this apparatus through the pipe (7^1), and these substances are removed through the pipe (8). A fraction of the remaining solution is led away through the pipe (9) and introduced into a pipe (10). The solution thus flows into the digester (1) in which the stock is being cooked.

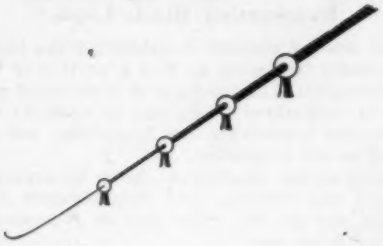
The volatile products evolved during the treatment of the solution in the evaporator (4), particularly methanol, are led away through the line (11). The dry residue is distilled in the still (5), superheated steam being used for this purpose. The volatile products, particularly acetode, are removed through the pipeline (12). The remaining solid residue, which consists principally of soda, is then fed into the dissolving and causticizing tank. The dissolved material is treated with caustic lime so that the sodium carbonate is converted into sodium hydroxide in the usual manner. The lye is then fed into the digester through the pipe (10). Dr. Erik Haegglund, Finland. German Patent No. 483,068.

Treating Wood for Halfstuff Manufacture

WHEN wood or other fibrous materials are treated, according to this invention, in an atmosphere of pressureless steam below a temperature of 100 degrees C. and of gaseous sulphur dioxide, then the stock, if it has been previously cut up into small pieces, will become so soft within a period of approximately five to eight hours that it can be squeezed and is suitable for further treatment for the production of paper stock, mechanical wood pulp and the like in the kollergang or other suitable apparatus. The wood remains white in this process; the fibers are disintegrated to such an extent that the stock that is obtained has a cellulosic character. The use of 200 grams of sulphur dioxide is necessary for the treatment of 100 kilograms of wood.

The softening action of the sulphur dioxide is considerably increased and the materials treated become even softer, when they are subjected to the action of steam which contains mineral acids, particularly sulphuric acid or hydrochloric acid vapors. The process may be carried out in the following manner:

A container, which is filled with wood, is first exhausted so as to remove the air as far as possible. The removal of the air may be accomplished by means of an exhauster and also by displacement by passing steam into the apparatus. Then gaseous sulphur dioxide is blown into the apparatus and the contents of the digester are heated by means of pressure-less



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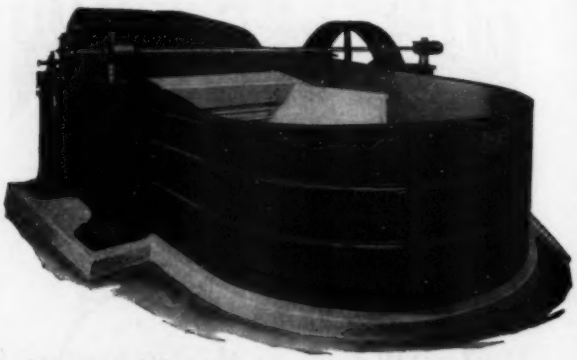

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steam to a temperature below 100 degrees C. This temperature is maintained during a period of six to ten hours. The gas is sucked out of the upper part of the apparatus by means of a suitable exhauster and is then circulated through the lower part of the apparatus. L. Enge, Niederschreiberhau, Germany. German Patent No. 484,805, filed Nov. 2, 1924.

Surface Sizing of Paper

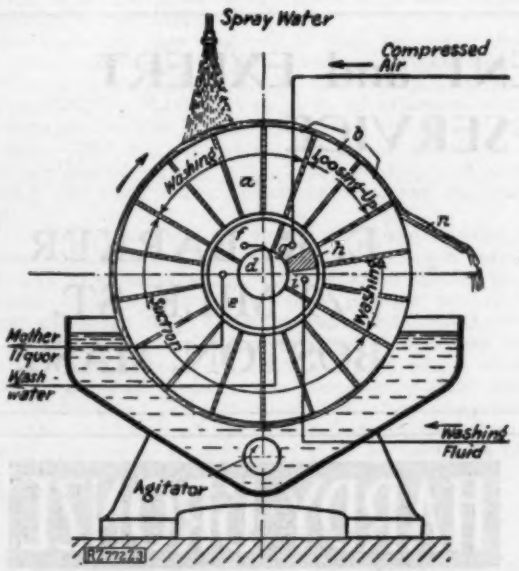
THE size bath should contain approximately six per cent of good glue, two per cent of alum and a little soda soap and it should always have a temperature of 30 to 60 degrees R. The paper should be heated before it enters the bath. Three stages of surface sizing are outlined, namely sizing, pressing, and drying. These are discussed in some detail. Great care should be taken in the drying process. There is danger that the prolonged drying in wet weather may cause the size to become foul. When the weather is windy, there is danger that the paper will become hard and brittle. Frost destroys the wet size completely.

The author also describes forms of sizing machines and gives directions for their proper operation. H. Postl, Zellstoff und Papier, 1930, pages 36-7.

Reworking Causticizer Mud in Sulphate and Soda Mills

THIS article describes a number of processes, which are used for the recovery of causticizer lime mud in sulphate and soda pulp mills, and which processes are little known in Germany. The author discusses briefly the economic side of the processes and the uses to which the limestone mud can be put. Most of the processes and apparatus described are of American origin. An interesting apparatus for filtering the mud is the Wolf compartment filter which is shown in the illustration.

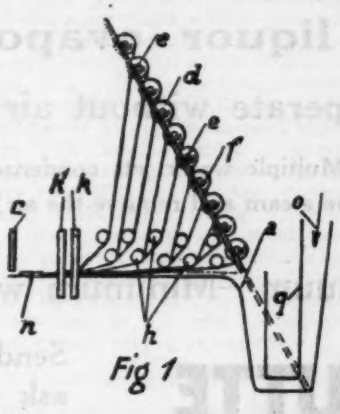
A suction drum dips into a trough provided with an agitating device and draws the slurry from the trough. The drum is provided with a perforated jacket of sheet metal which is



covered with a fine wire screen or filter cloth. The drum rotates at the speed of one to three r.p.m. Air is sucked through the film deposited on the drum after suction which has the effect of removing particles of water. As may be seen from the accompanying illustration, at a certain time in the revolution of the drum, the filtering cells become washing cells and the carbonate of lime is washed with water. The compartments are still under a vacuum and the water is drawn through the carbonate but collected separately from the water removed earlier. The next section of compartments are not under a vacuum but compressed air is blown into them so that the force of the air loosens up the film of carbonate. A cast iron doctor scrapes the carbonate from the surface of the wire screen or filter cloth. The filtering compartments and the wire screen are washed from the interior outward by a current of water so that all the adhering carbonate particles are removed. Dr. R. Lorenz, Der Papierfabrikant, 1930, pages 97-103.

Paper Strengthened with Threads

THE process is concerned with the strengthening of paper and paperboard by the introduction of threads into the fluid paper stock. The apparatus in which this is accomplished is shown in the accompanying illustration. The operation is carried out in a fourdrinier machine. The liquid paper



stock enters the box (a) and here the threads are entered from the rolls (d) with the aid of the guides (k) and (k¹), which control the position of the threads in the stock. The threads are pulled through by the tension on the paper web, after the paper has attained a certain strength in its path over the wire. The threads must be maintained in the position shown in the diagram at the start of the operation. Figure 2 shows how the lower ends of the guides (k) and (k¹) are fixed, so that the threads are kept at the right height and the right distance from one another. The threads are fastened tightly in the slots (m) of the plate (n) at the beginning of the operation. This plate floats with the stock over the machine until the paper web is sufficiently strong to pull the threads along with it. This state of affairs is commonly attained behind the first wet press, and here the metal strip (n) is removed before the paper web moves farther along. L. Wemmel, French Patent No. 661,865.

Consistency of Coatings Applied to Paper

WHEN the apparent viscosity of color mixtures is plotted against the percentage of the vehicle used in the mixtures, then it is found that paper-coating pulps may be classified into three different groups. These have been found to correspond to divisions based on mill experience. The results that have been obtained with the Gardner mobilometer and the de Nouy tensiometer do not indicate the superior ability of soft-sized mixtures to stay in place and give a perfect coating. Apparent yield value, as determined by the mobilometer intercept, is without significance in this instance. The tensiometer indicates that the troublesome pulps affect the surface tension of the vehicle adversely. Considerable seepage of casein into the paper surface takes place, and this results in a separation of the vehicle and pigment. This indicates that the mobility of the layer of coating mixture in immediate contact with the paper surface cannot be the same as that of the coating mixture as measured by ordinary consistency tests before it is applied to paper. The differences in behavior of soft and hard-sized coatings can only be explained by consideration of the internal structure of the suspension as indicated by the apparent viscosity, and the change in composition which takes place at the liquid-solid boundary during the application of the coating to paper. R. M. Cobb and D. V. Lowe, Journal Rheology, 1930, pages 158-166.

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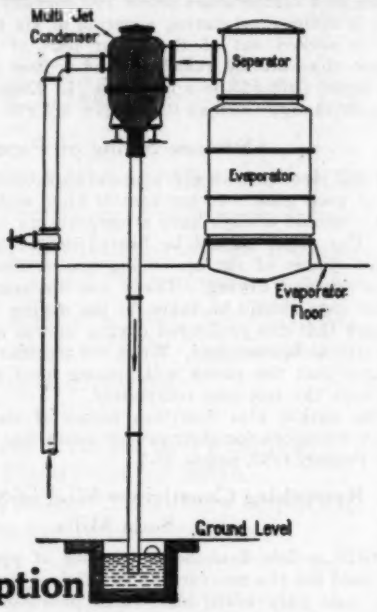

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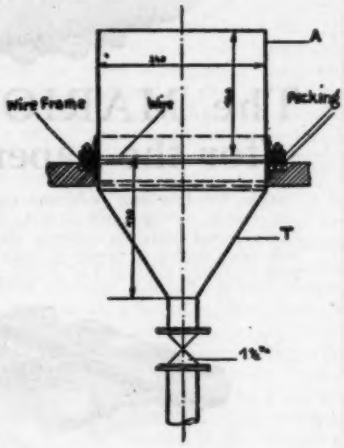
Testing the Strength of Soda Pulps

THE investigation was concerned with the establishment of the most favorable conditions for determining the strength of soda pulp by the aid of the Lampen mill. A series of experiments were carried out with unbeaten soda pulp, digested under normal conditions, of 11 degrees SR and a dry content of about 90 per cent absolutely dry. The same pulp was used in all the tests. A certain quantity of stock was defibrinated for half an hour at a speed of 150 r.p.m.; it is brought up to the desired volume and then introduced into the mill. The degree of beating was determined with the aid of the Riegler apparatus after 60, 90 and 120 minutes. Numerous results obtained in varying the conditions of the experiments are given in tabulated form. Experiments were also carried out to determine the effect of drying, of acidity and of the temperature on the beating of the pulp.



In the experiments on the density of the stock and the speed in r.p.m with respect to the degree of beating, it was determined that the most favorable density of stock is two and one half per cent and the speed of the rotation of the mill 250 r.p.m within the first half hour and 300 r.p.m. the rest of the time. It was found that moist stock attains a higher degree of beating more quickly than dry stock. Strong inorganic acids decrease markedly the degree of beating, while weak organic acids have no effect. Alkalinity has no effect.

The apparatus that was used to form the paper sheet is interesting and is shown in the accompanying illustration. The circular wire lies on a funnel (T). The wire is fastened in a frame consisting of two iron rings, an advantageous arrangement in that tension can be exerted on the wire in all directions. The ring frames as well as the cylindrical part (A) are packed tightly with rubber washers and screwed down to the lower flange as may be seen from the illustration.

In forming the sheet of paper, the funnel is filled with water to the wire and the strongly diluted stock is shaken as centrally as possible on the wire. The top part of the apparatus is unscrewed after several minutes and the wet paper web taken up with blotting paper and pressed for half an hour between sheets of blotting paper. The pressed sheets are then dried between two felts, weighted with a sheet of metal in a drying chamber at a temperature of 95 degrees C. The sheets of paper thus obtained, after being allowed to remain in the air of the laboratory for three hours (the humidity of the air is maintained at 65 per cent) are tested for uniformity and strength. Dr. Kienzyl and M. Nagl, Der Papierfabrikant, 1930, pages 49 to 55.

Making Paper Stock

THIS process is concerned with an improvement in the manufacture of paper stock and unbleached papers from grasses and similar kinds of raw materials. In this process the dried vegetable matter, such as wheat or cereal straws, are first chopped up into small pieces, moistened and then according to nature of the raw material treated only with steam of approximately five to six atmospheres pressure for approximately two to four hours. Thus the stock is not brought into contact with liquids. Then the steamed materials are mechanically processed in a beater or kollergang until a stock of the desired degree of fineness has been obtained.

One of the features of the new invention is that the disadvantages, which are incurred in the use of chopped up materials, are avoided, in that the dry, undisintegrated raw material is moistened in the form of compressed balls weighing approximately 50 to 80 kilograms and also steamed in this form. This method of using the straw makes it much easier to transport the materials and at the same time the digestion of the stock is accomplished with greater ease and the time lost in filling the ordinary chopped up materials into the digester is avoided. Gesellschaft fuer mechanische Zellulose m.b.H., Berlin, Germany. German Patent No. 487,282, filed Jan. 14, 1926.

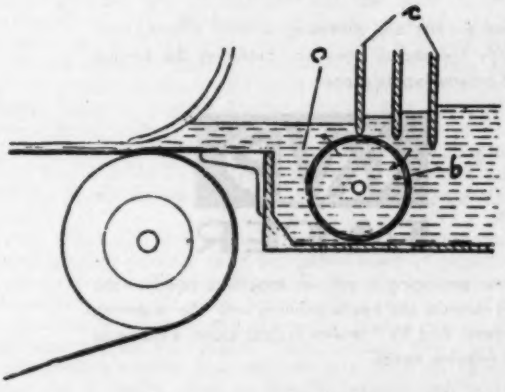
Apparatus for Concentration of Sulphite Waste Liquors

AN evaporator for concentrating the waste liquors of the paper industry without foaming or the formation of hard crusts comprises a boiler with a heating system consisting of a number of concentric rings each of which is built of two cylindrical, metal shells with upper and lower strengthening rings welded on to form a chamber through which the heating steam is passed. The liquor to be evaporated circulates rapidly through the annular spaces between the heating rings. The heating surface of a seven ring boiler is 120 square meters. All the auxiliary apparatus are arranged below the boiler so that the evaporating surfaces can be readily reached for cleaning, which is effected with the aid of a mechanically operated brush made with metal bristles. A basket-shaped chamber above the heating rings is provided with a rotating beating device which serves to break up any foam. Data are given on the capacity and power consumption of four sizes of this type of evaporator. Anon. Chemiker Zeitung, 1930, volume 54, page 99.

Controlling Flow of Stock in Stuff Chests

THIS invention is concerned with a device for controlling the flow of stock in machines for making paper and cardboard, and also for agitating and uniformly distributing the stock. The speed of the flow of stock to the wire is regulated in this manner in such fashion that this speed is substantially equal to the speed of the wire itself.

This advice is adapted particularly to use on slow moving paper machine in which case the accumulation of the stock is only very small proportionally with the speed of flow. The invention is shown in one form in the accompanying figure.



A perforated roller (b) is mounted within a stuff chest (a), and the size of the roller is such that it can be completely submerged below the level of stock and water in the chest, even when the depth of the liquor accumulated is very small. The boards (c) are located both above and below the perforated roller (b) and these boards serve to accumulate the stock and to regulate the flow of the stock. When the amount of stock accumulated is sufficiently large, all of the pulp is obliged to pass through the perforated roller. The pulp is thus agitated and distributed uniformly over the width of the wire, so as to free it from the air that is imprisoned in it. J. M. Voith. French Patent No. 669,712, filed Feb. 15, 1929.

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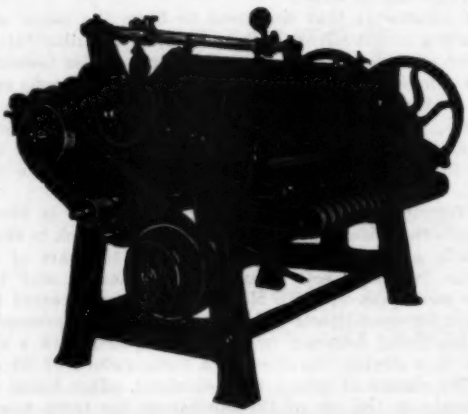

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THE market for paper and board, along with just about all other commodity markets, continues quiet. In fact, the paper market, as is so often the case, reflects very clearly the dullness obtaining in numerous other branches of trade and manufacturing. The depressed condition of the last several months has not been relieved, and, if anything, the advent of summer and the approach of the usual midsummer period of business quietness is making for an even slower paper market than has been witnessed recently.

It is very evident that consumers are buying paper on an ultra-reserved scale. The orders being placed today are against definite and direct needs. It is equally as apparent that the average user of paper is not consuming on a normal scale; that dullness in other lines of business is diminishing the requirements of paper consumers, so that, first, there is not the willingness on the part of buyers to operate in the market unless they are obliged to, and, second, there are not as large amounts of paper required as in more normal times. Small-lot business is developing consistently; mills and dealers alike report they are marketing a fair tonnage against such committments, but the market lacks demand of important dimensions, with the result that there is not nearly enough business to satisfy the desires of manufacturers. Consequently, reports are coming thick and fast of this or that or some other mill curtailing its production during the prevailing quiet spell in an effort to keep output within the scope of the market's demand.

Prices, too, are in an unfavorable position, from the point of view of the manufacturer and distributor of paper. This might be expected to a more or less degree in view of present market conditions, but the truth of the matter is that prices are weaker, or more disrupted or under greater pressure than they should be in spite of the prevailing market situation. Some paper manufacturers seemingly are overlooking the general business condition and the position of the paper market, and are striving harder than ever to secure orders for their product. Ruthless competition is holding sway within the industry; in some cases prices are being slashed with a seeming vengeance in the mad battle for business, and it stands to reason that because of such tactics, prices not only are very unstable but in certain instances are literally being torn to shreds as a result of the actions of paper manufacturers themselves.

It is gratifying, however, to note all the optimistic predictions that are being made in many quarters concerning the business outlook. Sentiment appears to be changing in the business firmament. Bankers, manufacturers, economists and others foresee a certain and strong "comeback" for business, and a majority who are stating their views are of the opinion that the revival is not far hence—that the early autumn will see a decided improvement in general business, and a return to more favorable levels of commodity prices. Obviously, when and if the improvement develops the paper industry will share to its full measure, because paper consumption and demand is dependent on so many and varied other branches of manufacturing and commerce.

Production of paper in the United States in April was on practically the same level in point of tonnage as during March, according to identical mill reports to the American Paper and Pulp Association. During April a total of 532,594 net tons of paper and board was produced in the United States, compared with 532,727 tons in the preceding month. Shipments from mills in April amounted to 517,833 tons, which were some 14,000 tons under the production tonnage, with the result that mill stocks climbed from a total of 266,115 tons of all grades at the end of March to 279,863 tons at the end of April. The April production represented a decline of 7 per cent as contrasted with the output in the similar month of 1929. Output of newsprint, paperboard, wrapping, bag, writing, tissue and building paper recorded a decrease in April as compared with a year ago, while hanging paper production showed a substantial gain, and book paper output scored a moderate increase. Newsprint, uncoated book, paperboard, writing, tissue and hanging registered increases in inventory at the end of April as compared with the end of March last. As contrasted with the end of April, 1929, inventories of newsprint, wrapping and bag papers showed decreases. The total mill stocks of all grades at the end of April were five per cent above March this year, and 14 per cent larger than in April last year.

Production of newsprint in the United States and Canada in May reached a total of 355,774 tons, and shipments from mills amounted to 353,736 tons, compared with 338,015 tons produced and 330,396 tons shipped in both countries in April, according to the News Print Service Bureau. Production by United States mills in May was 118,093 tons, and shipments were 114,702 tons, against 109,967 tons and 109,346 tons respectively in the preceding month, while Canadian production in May was 237,681 tons and shipments 239,034 tons, contrasted with 228,048 tons produced and 221,050 tons shipped in April. During May, 25,149 tons of newsprint were produced in Newfoundland and 742 tons in Mexico, so that the total North American production for the month amounted to 381,665 tons.

The Canadian mills produced 16,131 tons less newsprint in the first five months of 1930 than in the same time last year, which was a decrease of one per cent. The United States output was 6,538 tons or one per cent less than in the first five months of 1929. Production in Newfoundland was 14,135 tons or 14 per cent more, and in Mexico 612 tons less, making a total net decrease for the Continent of 9,146 tons. During May, the Canadian newsprint mills operated at 75.2 per cent of rated capacity, United States mills at 80.4 per cent, and Newfoundland mills at 101.1 per cent. Stocks of newsprint at Canadian mills totaled 44,409 tons at the end of May, and at United States mills 27,924 tons, making a combined total of 72,333 tons, which was equivalent to 4.3 days' average production.

From a general standpoint, fine papers are perhaps in a steadier market position than any other class of paper. Mills are moderately well engaged, having a fair amount of business booked, and prices are being maintained in most cases. However, the great majority of orders call for comparatively small amounts of fine paper. Mills making fine specialties are reported in a more favorable position than are those producing the ordinary lines of bonds, ledgers and writings. Book paper is in fair movement, although mainly against contracts, with little change of definite character in quotations. Tissue is quiet and on the easy side in price. Wrapping continues in a more or less chaotic market condition, with manufacturers competing keenly for orders, and with prices uncertain. It is understood, however, that a quarter of a cent per pound advance in prices of southern kraft has been put into effect. Newsprint shows no change marketwise except that consumption is on the downtrend, as ordinarily is the case at this season.

Boxboards are in limited demand, but there are signs of impending improvement. Manufacturers are adhering fairly steadily to quotational levels though it is reported concessions are being allowed in some quarters, more especially when tonnage orders are involved.

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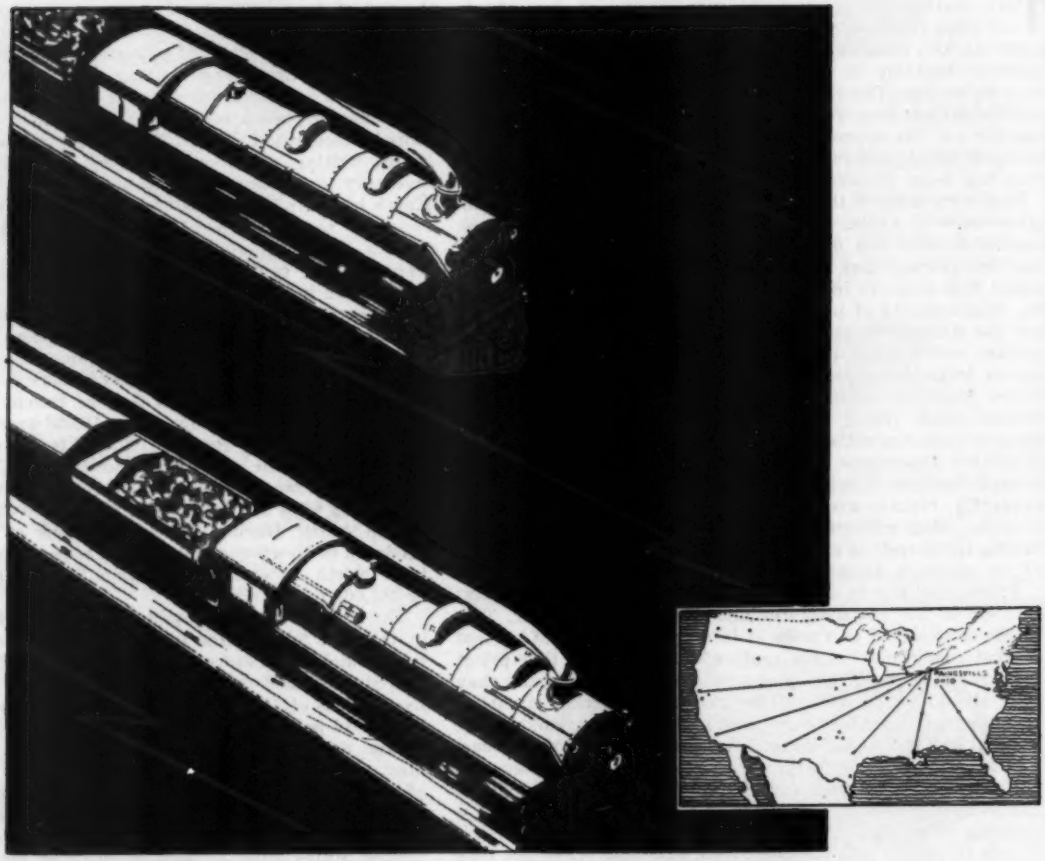

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Papermaking Rags

While it is perfectly evident that demand for papermaking rags is restricted, with mills buying only as their needs dictate and with most orders calling for comparatively small lots, it is also apparent that a firmer technical condition is in process of development in the market. The quiet market that has obtained for some time, and the unprofitable prices which dealers have been able to get for rags, have led to a rather drastic curtailment of collections and sortings all over the country, with the result that supplies available in the market are well below normal. Also, dullness in other industries, notably the clothing manufacturing industry, means a much smaller production of new cuttings as used by paper mills. Thus, the firmer statistical complexion of the market is noticeable not only in old but also in new rags for paper manufacture.

This condition as respects new cotton cuttings is declared by dealers to be bordering on acuteness, it being said that some grades of cuttings are almost unobtainable except in very small quantities, and that the aggregate production of new cuttings of all descriptions is not more than 50 per cent of normal at present, nor has it been for some while past. Such a supply situation obviously is causing dealers to proceed somewhat cautiously in making sales even when the opportunity is afforded them to book orders from consuming mills, since they have learned through recent experience that it is not by any means an easy matter to cover commitments when they go into the market to seek supplies. If supplies were coming in from production sources in anything like normal volume, the likelihood is that dealers would be pressing to move stocks, but under the circumstances obtaining, dealers are equally as careful in effecting sales as are papermakers in acquiring supplies, and quoted prices consequently are being fairly well maintained in spite of the market condition.

Still, paper manufacturers are not encountering much if any difficulty locating all the rags, of almost any grade, that they require. It is probable that when demand revives, the supply situation—unless it is rectified meanwhile—will make for a rather rapid and sharp rise in market rates, but with consumers buying in as light volume as they are, available supplies are ample to go around without much semblance of a shortage noted.

Old cottons are reported moving moderately well, and at sustained prices. No. 1 repacked whites are bringing around 6 cents a pound f.o.b. dealers' shipping points, with the full quotational range from 5.25 to 6.50 cents, depending on the quality of the rags concerned, while No. 2 repacked whites are quoted at 2.75 to 3 cents, and repacked thirds and blues at 2.40 and 2.65 cents per pound. Roofing rags have been characterized by a little more demand, more especially domestic stock, but prior to the improvement in mill demand. prices sunk to lower levels, and now rule at the lowest points seen in some years. Sales of No. 2 domestic roofing rags have been reported at 75 cents per hundred pounds f.o.b. shipping points, while No. 1 domestic or cloth strippings are fetching only in the vicinity of 1.25 cents a pound at dealers' points of shipment. Foreign roofing is neglected by consumers since the prices quoted from abroad are beyond a parity with those at which domestic material can be bought. Imported rags in general are marked by very slight market activity, owing in part to price disparity and in part to the fact that mill buyers are covering most of their wants with domestic rags.

Dealers are asking 8.50 cents or thereabouts per pound for new No. 1 white shirt cuttings, 5.50 cents for fancy shirt cuttings, 9 to 9.25 cents for new unbleached muslins, 6.75 to 7 cents for light silesias, 5.25 to 5.50 cents for No. 1 washables, and 6.75 to 7 cents for new blue overall cuttings. Above these prices is quoted in not infrequent cases, and sellers are entering commitments involving sizable quantities of new cuttings in a very guarded manner.

Average quotations f.o.b. shipping points and ex dock New York are as follows:

New Stock—	New York and Chicago
White shirt cuttings, No. 1	8.25– 8.75
White shirt cuttings, No. 2	6.50– 6.75
Fancy shirt cuttings	5.25– 5.50
Washables, No. 1	5.25– 5.50
Unbleached muslins	9.00– 9.25
White lawns	7.75– 8.00
Overall cuttings, blue	6.75– 7.00
Black silesias	4.50– 4.75
Canton flannels, bleached	8.50– 8.75
Canton flannels, unbleached	7.25– 7.50
Shoe cuttings, bleached	6.75– 7.25
Shoe cuttings, unbleached	6.00– 6.50
Light silesias	6.75– 7.00
O. D. khaki cuttings	5.75– 6.00
Mixed khaki cuttings	4.75– 5.00
Corduroy cuttings	3.25– 3.50
Cottonade cuttings	3.00– 3.25
Linens, No. 1 white, foreign	14.00–15.00
Light prints, foreign	4.00– 4.50
Old Stock—	
Whites, No. 1, repacked	5.25– 6.50
Whites, No. 2, repacked	2.75– 3.00
Whites, house soiled	2.00– 2.25
Whites, street soiled	1.75– 2.00
Thirds and blues, rough	1.70– 1.90
Thirds and blues, repacked	2.40– 2.65
Lace curtains	4.75– 5.00
Black stockings	4.10– 4.25
Cotton canvas, No. 1	4.25– 4.50
White cotton batting	2.00– 2.25
Roofing, No. 1 (cloth strippings)	1.20– 1.30
Roofing, No. 2	.75– .85
Lindsey garments, foreign	1.25– 1.35
Dark colored cottons, foreign	1.00– 1.10
Blue linens, foreign	3.50– 4.00
Gray linens, foreign	4.00– 4.50
White linens, foreign	7.50– 8.00
Light prints, extra foreign	2.00– 2.25

Rope and Bagging

In keeping with the general quietness in papermaking materials, demand for old rope and bagging is on a restricted scale, and paper manufacturers appear to be securing the supplies of these articles wanted at about their own prices, so long as they bid reasonable figures. Domestic No. 1 old manila rope is reported available at 3.50 cents a pound f.o.b. dealers' shipping points, while foreign old rope is eliciting bids from consumers of only about 3.25 cents ex dock New York. Strings and the off-grades of old rope are in very little call, and are mainly nominal in price.

Scrap bagging of No. 1 quality is moving in a steady manner though in small volume to regular consuming mills, on a price basis of about 1.50 cents to slightly higher per pound f.o.b. shipping points. Roofing bagging is difficult to market and is reported available at approximately 65 cents per hundred pounds at dealers' points.

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F.o.b. shipping point and ex dock New York quotations follow:

	New York and Chicago
Gunny, No. 1 domestic	1.55– 1.60
Gunny, No. 1 foreign	1.50– 1.60
Scrap bagging, No. 1	1.50– 1.60
Roofing bagging	.60– .65
Wool tares, heavy	1.65– 1.75
Wool tares, light	1.55– 1.65
Manila rope, No. 1 foreign	3.25– 3.50
Manila rope, No. 1 domestic	3.40– 3.60
Sisal strings	1.75– 2.00
Mixed strings	.80– .90

Old Paper

From bad to worse, the market for old paper has remained deep down in the doldrums, and prices have moved to levels which in some cases can be said to have been unheard of for many years prior to the present market downtrend. Demand from consuming quarters has been of narrow dimensions, and despite the efforts of packers and dealers to effect a change for the better in the market by curtailing collections of the low grades of waste paper to a rather drastic extent, prices have sunk to where they have disappeared very nearly out of sight. Even the high grades have also moved to cheaper price levels, and can now be bought at lower rates than a few weeks ago.

So serious is the price position in low grades of waste paper that it is said reliably that certain consumers have done what they could to elevate market values a bit, but of course they have proceeded carefully in their endeavor in this connection. Old No. 1 mixed paper has been bought by mills in the East down to $2 a ton or 10 cents per hundred pounds f.o.b. shipping points, though prices of this grade have stiffened a shade to where 20 cents or a bit higher is now asked. Folded news is on a price level of 30 to 35 cents per hundred pounds f.o.b. eastern shipping points, ordinary ledger stock is available at 80 to 90 cents per hundred, and container manilas at 25 to 30 cents a hundred. Soft white shavings are quoted on a range of 2.40 to 2.80 cents per pound at shipping points, hard white shavings of No. 1 grade at 2.50 to 3 cents, and No. 1 heavy book stock at about 1.05 cents per pound.

The following are quotations named by dealers f.o.b. shipping points, some of which are strictly nominal:

	New York and Chicago
Hard white shavings, No. 1	2.50– 3.00
Hard white shavings, No. 2	2.25– 2.50
Soft white shavings	2.40– 2.80
Colored shavings	.70– .80
Heavy book, No. 1	1.00– 1.05
Crumpled book, No. 1	.75– .80
Ledger stock	.75– 1.20
Kraft No. 1	1.35– 1.50
New kraft cuttings	1.90– 2.00
White blank news	1.70– 1.80
Manilas, No. 1	.40– .60
Manilas, container	.25– .30
Folded news	.30– .45
Sulphite mill wrappings	.50– .60
Old corrugated box cuttings	.35– .40
New corrugated box cuttings	.50– .60
Mixed paper, No. 1	.15– .30
Common paper	(Nominal)

Pulpwood

The market for pulpwood is without change of moment, with current activity on a moderate scale though somewhat deterred by the season. Buyers are not in a great deal of evidence at this time of the year, but the movement of supplies against contracts keeps up in a steady manner. No revisions of note are reported in quoted prices.

Mechanical Pulp

Despite a lack of important so-called open-market demand for mechanical pulp, a steady tone characterizes quotations, and signs point to a rather firm statistical position. Apparently producers have limited stocks on hand which they are

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G. D. C. No. 49
"Dyestuffs for Coloring Paper"
and G. D. C. No. 63
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Illustrate—Dyes for Your Every Need Such as—
FASTNESS TO LIGHT NON-TWO-SIDEDNESS
LOW COST OF COLORING

Our well-equipped laboratory and our experienced technical staff are at your service for solving your color problems.
An ample supply of current colors is carried in stock by all branch offices.

Headquarters
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GENERAL DYESTUFF CORPORATION

Starch—

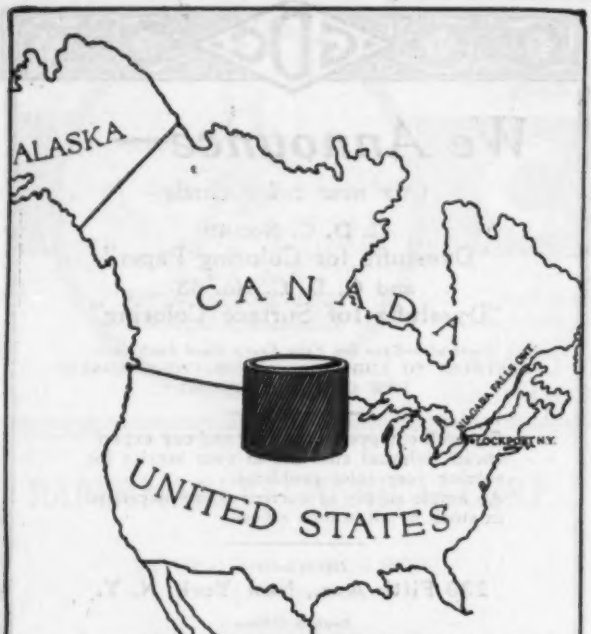
A SIMPLE change in the manufacturing process often results in a pronounced decrease in cost of production.

Paper Mills use Starch for sizing to produce better and stronger sheets with lower cost of manufacture.

Our SPECIAL PAPER brand, furnished in either Pearl or Powdered form for beater-sizing, increases strength of sheet and gives improved finish.

Our FOX HEAD brand for top-sizing is more economical than all glue-size.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City



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MANUFACTURERS OF
PAPER & PULP MILL SPECIALTIES

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A FIRST REQUISITE
IN
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Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Gulf and Newgulf, Texas

100 Tons Kraft Per Day—
58% A.D.
With the Famous
Kamyr Wet Machine

PRODUCTION . . . .

Kraft	up to 100 Tons
Sulphite	up to 80 Tons
Soda	up to 60 Tons
Groundwood	up to 50 Tons

RESULTS . . . . . .

With 1 Press	42% A.D.
With 2 Presses	55% A.D.
With 2 Presses & Predryer	58% A.D.

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Upkeep, Power, Fibre
Floor Space and Freight

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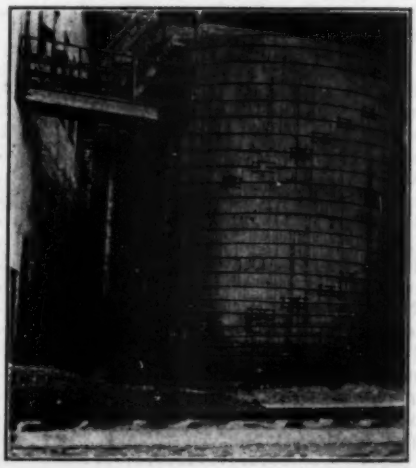
Sole Agents in U. S. A. For
PAPER MACHINERY, LTD.
Montreal, Quebec.

TANKS THAT LAST



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Kalamazoo tanks are made of best obtainable tank woods, built right—guaranteed tight.
Sixty years experience building Blow Pits, Acid Tanks, Stuff Chests, Agitators, etc., for the Paper Trade.
See our condensed catalog in Paper & Pulp Mill Catalog, Chemical Engineering or Sweets.
Ask about our new Tile Tanks for stock or bleach.

KALAMAZOO TANK & SILO CO., Kalamazoo, Mich.

eager to dispose of, and the market seems fairly clear of sizable accumulations which might bear heavily on prices; in fact, it is said that grinders with rare exception are pursuing a waiting policy and do not attempt to effect sales until consuming customers manifest some desire to buy. The contract movement of groundwood is keeping up steadily, but it is admitted generally that not many spot transactions are being recorded, for the reason that consumers as a usual thing are getting along with contract commitments in a way foregoing the necessity of additional purchases in the transient market. Domestic groundwood is on a price level of around $30 per ton f.o.b. pulp mills, while Canadian producers quote between $25 and $30 at shipping points, depending on the air dry test and the freight to consuming centers.

Mills in the United States produced a total of 104,066 net tons of groundwood in April, against 106,205 tons in the preceding month, according to identical mill reports to the American Paper and Pulp Association. Stocks at producing plants at the end of April amounted to 80,115 tons, compared with 64,492 tons a month before.

Chemical Pulp

Distinct quietness obtains in the chemical wood pulp market insofar as concerns any new business of worthwhile character or scope. There is, of course, a steady movement of pulp into consuming channels against contracts, and in the aggregate producers are shipping a fairly large tonnage, so reports state, but fresh demand is along very narrow lines. The situation is, it would appear, that consumers have all the supply on hand that is needed, or are receiving ample shipments against current requirements without having to resort to additional buying, other than in exceptional cases. Moreover, the policy generally in force among paper manufacturers to keep stocks of raw material down as low as possible, and at the same time keep their capital as liquid as they can, is a factor making for a limited demand for pulp in the market at present.

Prices are anything but firm, yet they appear to be steadier than is the case in imported pulp. Bleached sulphite of domestic manufacture is quoted from 3 cents a pound upwards f.o.b. shipping points, with some of the high-grade bleached pulps held at as high as 4.75 cents per pound at pulp mills. Unbleached sulphite of No. 1 strong grade is around 2.50 cents a pound at producing plants, and of book quality around 2.75 cents. Southern kraft pulp is quoted at 2 cents a pound, and possibly at less, whereas No. 1 eastern kraft is as high as 3 cents per pound at pulp mills.

Production of chemical pulp in the United States in April amounted to 130,234 net tons, compared with 134,892 tons produced in March, according to identical mill reports to the American Paper and Pulp Association. Mill stocks at the end of April were 26,113 tons of all grades, against 25,162 tons a month earlier.

Quotations f.o.b. pulp mills are as follows:

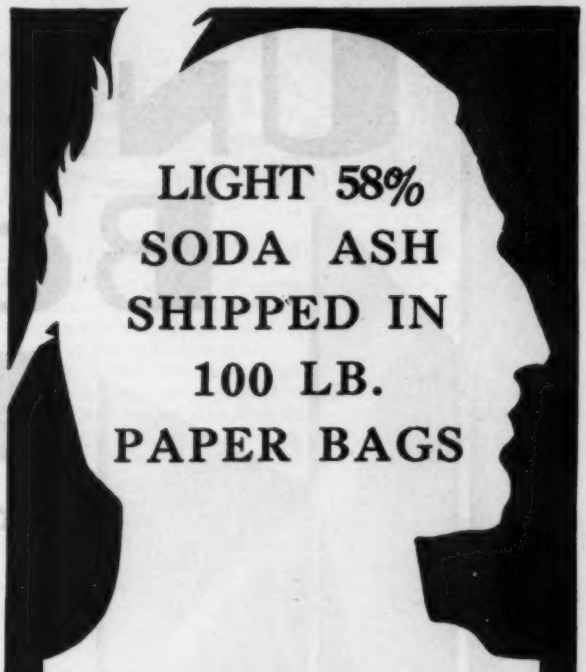
Bleached sulphite	3.00–4.75
Easy bleaching sulphite	2.55–2.80
Unbleached sulphite, No. 1 strong (news grade)	2.35–2.60
Unbleached sulphite, No. 1 book	2.60–2.85
Soda pulp bleached (delivered)	3.20–3.40
Mitscherlich, unbleached	3.00–3.25
Kraft, No. 1	2.00–2.75
Screenings, refined	(nominal)

Chemicals

There is little else than routine activity in the papermaking chemicals market, with the principal movement against contracts. Quotations nevertheless are maintaining their position, with few changes registered. Bleaching powder is quoted on a range of 2 to 2.35 cents a pound in drums f.o.b. works. Soda ash is 1.32½ cents a pound for carload lots packed in bags at points of shipment, while caustic remains on a basis of 3.30 to 3.35 cents a pound.

Average quotations are as follows:

Alum, lump ammonia	3.50 – 3.75
Alum, lump starch	3.75 – 4.00
Blanc fixe, powdered	3.75 – 4.00
Bleaching powder	2.00 – 2.35
Brimstone (long ton, at mine)	18.00 –20.00



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WYANDOTTE Soda Ash is now packed in multi-wall paper bags. Multiple layers of special paper end the old dust nuisance—no meshes to let the dust seep through. The smooth paper lining lets the entire contents slide right out.

The new size makes handling easier, quicker, less expensive. You save time, labor. Guaranteed dust-proof, leak-proof, break-proof, moisture-proof.

Michigan Alkali Company is the first Soda Ash manufacturer to successfully use this method of packing Soda Ash.

"Distinguished for its high test and uniform quality"

MICHIGAN ALKALI CO.

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NOTE NEW ADDRESS: Our new location in New York is at 10 East 40th Street—just across the street from where we were and a few steps nearer Fifth Avenue.

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with the COE *Roller Dryer*

Of the processes involved in wallboard manufacture, the most difficult is that of drying.

In the drying methods in use up to 1920, one of the greatest disadvantages was the lack of uniformity resulting. Boards produced varied widely not only in moisture content, flatness and shrinkage, but also in soiling and breakage due to the handling required.

COE, in solving the biggest problem of the board manufacturer with the COE Roller Dryer, also overcame this disadvantage of other drying methods.

COE Board Dryers, now being used for over 95% of the wall and plaster boards manufactured, produce *greater uniformity*—

—*in moisture content* because of the constant conditions and complete control of humidity, temperature, etc. possible;

—*in quality,* as the roller principle prevents warping, wrinkling, curling, etc.;

—*in size,* due to constant conditions and drying rate.

These and other reasons why the Coe is the accepted dryer in the board field are explained in the Coe Board Dryer catalog. Write for your copy.

The COE MANUFACTURING CO.

382 Bank St., Painesville, Ohio

New Papers

Writing—	
White rag	15–40
White sulphite	9–30
Colored rag	15–40
Colored sulphite	8–30
Ledger—	
White rag	16–40
Colored sulphite	10–30
Colored sulphite	8–30
Colored rag	15–40
Bond—	
White rag	16–40
White sulphite	8–30
Colored sulphite	8–30
Colored rag	15–40
Book—	
No. 1 S. & S. C.	5.75– 8.00
Machine finished	5.50– 8.00
English finish	5.50– 8.00
Coated and enameled	7.50–12.00
Lithograph, M. F.	7.50–12.00
Newsprint—	
Rolls, contract, per ton, delivered New York	62.00–
Rolls, transient, per ton, delivered New York	62.00–
Sheets, per ton, delivered New York	67.00–
Side runs, per ton, delivered New York	47.00–52.00
Cover Stock—	
Coated, both sides	–10.25
Coated, one side	–10.15
Tissue—	
No. 1 white, 20x30	.75– .90
No. 2 white, 24x36	.75– .90
No. 1 Manila, 24x36	.75– .80
Kraft	.95– 1.10
Wrapping—	
No. 1 kraft	5.75– 6.25
No. 2 kraft	3.50– 4.50
Southern kraft	3.25– 4.00

Boards—	New York and Chicago
Solid news	37.50–40.00
Straw	50.00–55.00
Plain chip	35.00–37.50
White coated chip	50.00–55.00
Manila coated chip	45.00–50.00
Binder's board	65.00–70.00

Chemicals

(Continued from page 763)

Casein (duty paid)	13.50 –15.00
Caustic soda, spot delivery	3.30 – 3.35
China clay, domestic washed	8.00 –13.00
China clay, foreign	15.00 –21.00
Rosin, Grade E	6.75 – 6.80
Satin white	2.00 – 2.25
Soda ash, 58 per cent light (bags)	1.32½–.....
Starch, papermakers', in bags	3.72 –.....
Talc (ton)	16.00 –18.00

The American Arch Company announces the removal of its main offices from 17 East 42nd street to the Lincoln building, 80 East 42nd street, New York City.

Dr. Kress to Visit Japanese Mills

An inspection tour of Japanese paper mills, a visitation tour of American technical schools, and continuation of library cataloging are the summer activities of the Lawrence college Institute of Paper Chemistry.

Dr. Otto Kress, technical director of the Institute left recently for a tour of inspection which will include Japanese paper mills whose new manufacturing processes have attracted worldwide attention. Dr. Kress will return in time to direct the opening of the fall term of the Institute in September.

Harry F. Lewis, newly appointed professor organic Chemistry, one-time research chemist for the National Analine Chemical Company, Buffalo, New York, is inspecting a number of institutions giving technical training. Dr. Lewis will also interview students who have applied for admission to the Institute. Personal selection of new Institute students has proved necessary because of the large number of applicants. Enrollment has been limited to ten students for the coming term.

Hjordes Roseth, Institute librarian and expert research bibliophile will continue the cataloging of research material now being assembled. The library, established by a special gift of $15,500 from anonymous donors, bids well to become the best research library for study in pulp and paper chemistry.

Harold S. Falk Wins Degree

An honorary degree of Master of Science was conferred upon Harold S. Falk, vice-president and works manager of the Falk Corporation, Milwaukee, by Marquette University in recognition of the work done by him in the promotion of the apprentice training movement in American industries. The degree was conferred during commencement exercises in June.

Mr. Falk has played a leading part in the revival of apprentice training which has taken place in the last ten years in American industry. In addition to building up an effective apprentice training system in his own plant, Mr. Falk has been for ten years chairman of the Apprenticeship Committee of the National Metal Trades Association in Milwaukee, and under his direction the number of apprentices in the machinery building industries of the city has grown from about 400 in 1920 to 1,100 at the present time.

Davis Regulator Builds New Factory

Contrasted with the general indecision of industry in the face of the current business depression, the Davis Regulator Co., Chicago, Illinois, moved into its new factory building June 1. Simultaneous with the announcement of the new address is the change of name from G. M. Davis Regulator Co. to Davis Regulator Co. The new plant was made necessary by the expansion of manufacturing departments and the desire to increase production facilities for future operations.

The products to be manufactured in the new plant include the well-known Davis duplex balanced valve steam trap; steam, gas and water strainers; feed water balanced control valve; exhaust relief valve; solonoid balanced valve; automatic back pressure regulating valve; positive action tight closing float valve; fluid control valve; cushioned stop and check valve; visible action Davis pressure regulator, piston and diaphragm types; and the new No. 13 pressure regulator for universal service.

CHEMICAL AND MECHANICAL PULP

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Sarpsborg, Norway—Edsvalla, Sweden
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Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Svanö Aktiebolag, Svanö, Sweden
Aktieselskabet Greaker Cellulosefabrik, Greaker Norway

KRAFT PULP

Nensjö Cellulosa A.—B., Sprängsviken, Sweden
Bergvik och Ala Nya Aktiebolag, Söderhamm, Sweden
Munksunds Aktiebolag, Munksund, Sweden
Kalix Träindustri Aktiebolag, Vanafjärden, Sweden

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CANADIAN KRAFT, LTD.

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Bleached Sulphite—Bleached Soda Pulp
Howard Smith Paper Mills, Ltd.
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"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

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Bathurst Power & Paper Company, Limited

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SELLING AGENTS
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Unbleached Sulphite 50 tons daily
Kraft Pulp 50 tons daily

Our pulp is made from Canadian Spruce
We ship in Sheets, baled

BATHURST, NEW BRUNSWICK, CANADA

EXPORTS

In keeping with the current trend in the export trade of the United States, exportations of paper during April showed a decrease in point of total value as compared with the same month last year, although registering a slight gain over the shipments in the preceding month, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. Total exports of paper of all kinds in April reached a value of $2,866,159, contrasted with exports of a value of $2,860,624 in March of this year, and $2,948,990 in April last year. The April exports brought the total for the first four months of the current year up to a value of $11,488,654, recording a decline as compared with $13,094,038 in the similar period of 1929.

Exports of newsprint from the United States in April amounted to 2,046,119 pounds, valued at $98,287, against 1,627,016 pounds of a value of $78,187 in the preceding month, and 1,796,659 pounds of a value of $65,622 in the same month a year ago. Uncoated book paper exports in April were valued at $250,236, compared with $215,776 in March last, and $232,167 in April last year, while wrapping paper shipments during April were valued at $242,567, against $277,196 in the preceding month, and $218,405 in April, 1929. Writing paper exports were of a declared value of $209,468 in April, contrasted with $199,439 in March this year, and $259,582 in April a year ago. Sheathing and building paper exports in April were of a value of $71,788, against $57,508 in the preceding month, and $82,931 in the similar month last year.

Exports of boxboard, paperboard and strawboard in April were valued at $117,344, compared with $103,654 in March last, and $103,982 in April, 1929, while exports of other paperboard were valued at $140,597, against $124,711 in the preceding month, and $140,013 in April a year ago.

IMPORTS

Wood Pulp

A dull market indeed exists for imported wood pulp. There seems just a single word which fittingly describes the situation prevailing—the market is "sick." Not only are consuming buyers exhibiting an almost total lack of interest in acquiring additional supplies of pulp, but in a good many cases paper manufacturers are themselves sellers of foreign wood pulp, having surplus stocks or commitments which they are eager to dispose of if buyers can be found. Added to this is a supply situation which is nothing less than discouraging or disconcerting. Large quantities of imported pulp are said to be held on the docks and in port warehouses at the several American Atlantic ports, and while a good part of these stocks is pulp belonging to paper and board mills, there is also a sizable tonnage unsold—and worth a good deal less at present than when it was bought at primary sources abroad.

The situation reflects two things, one of which is that, owing to the general business depression and the slowing down of demand for paper and board, less pulp has been consumed in recent months and less is required by consuming mills at present; the other is the record-breaking importations of pulp in the closing months of 1929 and the first two months of the current year, when by far a larger tonnage of chemical wood pulp was brought into the United States than ever before in a similar length of time. A surplus of available supply has been created, which in conjunction with a subnormal demand and eagerness on the part of some owners of pulp to liquidate makes for a most unsatisfactory price condition.

Fortunately, imports have decreased following the exceptionally large arrivals during January and February of this year. Official U. S. Department of Commerce statistics show that importations during April amounted to 82,612 long tons, valued at $4,832,172, compared with 91,037 tons of a declared value of $5,416,015 imported in the preceding month, and 110,497 tons of a value of $6,442,298 in the similar month last year. The imports in February this year were 159,645 tons, and in January 153,092 tons, making a total for the first four months of 1930 of 486,386 tons, or a monthly average of 121,596 tons, contrasted with a total of 427,069 tons or an average of 106,767 tons monthly during the corresponding period of 1929.

Imports of mechanical pulp in April amounted to 18,423 long tons, valued at $472,200, compared with 24,401 tons of a value of $714,656 in the preceding month, while importations during the first four months of this year totaled 103,117 tons, valued at $2,891,765, against 71,298 tons of a declared value of $1,848,261 in the same time a year ago.

Imported bleached sulphite of prime grade can be bought at 3 cents upwards per pound ex dock Atlantic seaboard, with quotations ranging up to 4.25 cents, depending on the quality of the pulp concerned. Strong unbleached is quoted at around 2.50 cents a pound ex dock, easy bleaching sulphite at 2.75 cents, ordinary unbleached Mitscherlich at 2.50 cents, and No. 2 unbleached sulphite at about 2.25 cents. A further decline in standard Swedish kraft has brought prices down to 1.75 cents a pound ex dock, with reports heard of some offerings at as low as 1.65 cents. Foreign groundwood is quoted at $32 a ton for dry and $30 to $31 for moist ex dock American Atlantic ports.

Current market quotations ex dock New York, and receipts at the port of New York during June, 1930, follow:

Bleached sulphite, No. 1	3.00– 4.25
Unbleached sulphite, strong No. 1	2.40– 2.65
Unbleached sulphite, No. 2	2.20– 2.40
Easy bleaching sulphite	2.65– 2.90
Mitscherlich unbleached, genuine	2.85– 3.00
Mitscherlich unbleached, ordinary	2.50– 2.65
Kraft, standard Swedish	1.75– 1.90
Groundwood, per ton (dry)	32.00-33.00

Bulkley, Dunton & Co., 16,940 bls. from Stugsund, 3,150 Svartvik, 1,800 Sundsvall, 3,625 Gefle 2,000 Essvik and 5,730 Hernosand; Guaranty Trust Co., 254 bls. from Hamburg, 447 Bremen and 750 Sundsvall; Irving Trust Co., 330 bls. from Bremen, 150 Helsingfors and 600 Hernosand; Harriman Bros., 1,008 bls. from Hamburg; Johaneson, Wales & Sparre, 480 bls. from Svartvik, 2,375 Gothenburg and 1,050 Sundsvall; National City Bank, 150 bls. from Hamburg; Atterbury Bros., 2,271 bls. from Oslo; E. M. Sergeant Co., 700 bls. from Oslo; M. Gottesman & Co., 3,360 bls. from Sibenik; Bankers Trust Co., 1,200 bls. from Stockholm; Kidder, Peabody & Co., 26 bls. from Gothenburg; Pagel, Horton & Co., 1,200 bls. from Hornefors and 3,750 Gefle; Castle & Overton, 2,630 bls. from Hamburg; J. Andersen & Co., 275 bls. from Hamburg and 6,900 Hernosand; Scandinavian Pulp Agency, 250 bls. from Sundsvall; Stora Kopparberg Corp., 3,200 bls. from Skutskar; Brown Bros. & Co., 1,000 bls. from Skutskar; International Acceptance Bank, 300 bls. from Oslo and 300 Hernosand; Chemical Bank & Trust Co., 150 bls. from Oslo; A. P. W. Paper Co., 7,422 bls. groundwood from Sheet Harbor, N. S.; Price & Pierce, Ltd., 250 bls. from Gothenburg; Lagerloef Trading Co., 287 bls. from Helsingfors and 1,280 Rauma; Order, 1,059 bls. from Hamburg, 2,486 Kotka, 5,490 Hernosand and 820 Tolkis.

Paper Stock

Imports of papermaking rags into the United States in April amounted to 36,888,998 pounds, valued at $916,400, compared with 33,066,196 pounds of a value of $693,327 im-

SOLVAY PRODUCTS

SODA ASH
CAUSTIC SODA

Liquid Chlorine

Contract or Spot Delivery
In tank cars and multiple unit cars.

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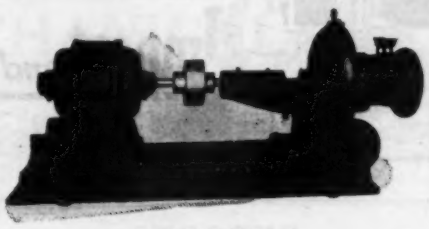

Class BI Stock Pump
Horizontal Split-Single Suction

STOCK PUMPS
AGITATOR PUMPS
FOR ALL CONDITIONS

As we were among the first to develop a horizontal split, single suction stock pump, we have been thru the development stage and now have a stock pump which includes ALL the desired up-to-date features.

We also make a screw **agitator pump** for use in successfully **agitating** the present day high consistencies of stock.

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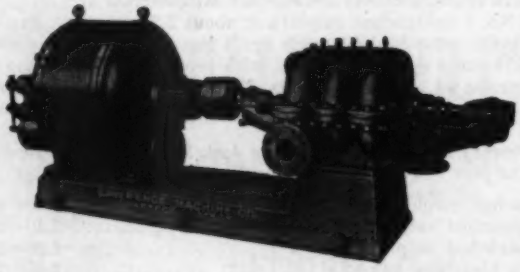

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LAWRENCE MACHINE & PUMP CO.
LAWRENCE, MASS.

Manufacturer of "Lawrence" Pump, Centrifugal Pumping Machinery, Vertical Steam Engines, Contractors for Special Machinery

The Advantages of WOOD TANKS

They are not corrodible and are ideal for acid storage, alum solution, tanks, etc. They are used where steel cannot be used and usually are preferred to steel where either will do. Wood tanks require little upkeep, are painted only for appearance and for most purposes are the most economical in the long run.

The illustration shown below is a Battery of Acid Tanks at the St. Regis Co. Mill at Deferiet, N. Y.

The HAUSER-STANDER TANK CO.
Cincinnati, Ohio

ported in the preceding month, making a total for the first four months, of this year of 135,442,529 pounds, against 127,022,149 pounds imported in the corresponding period of 1929, according to official U. S. Department of Commerce figures. Imports of waste bagging and waste paper during the first four months of the current year totaled 42,544,662 pounds, contrasted with 44,963,013 pounds in the same time time last year, while imports of old rope and miscellaneous paper stock were 46,653,990 pounds, against 27,375,262 pounds in the similar period a year ago.

Imports of papermaking materials in June were fairly large, some sizable amounts of rags, old rope and bagging being received, taking the receipts through the port of New York as a criterion. Arrivals of all kinds of paper stock excepting wood pulp at that port last month, these data being taken from manifests of steamers reaching New York during June, were as follows:

Old Rope—Brown Bros. & Co., 820 coils and 151 bls.; Arnold Bernstein Steamship Co., 31 bls.; R. M. Gray, Inc., 7 coils; Anglo-South American Trust Co., 67 rolls, 48 bls. and 60 coils; International Purchasing Co., 356 coils; William Steck & Co., 221 coils; Irving Trust Co., 61 coils; United Fruit Co., 22 coils; International Trust Co., 265 bls.; Liberty National Bank, 40 bls.; Order, 114 coils and 142 bls.

Old Bagging—Brown Bros. & Co., 96 bls.; Irving Trust Co., 118 bls.; Freund & Freund, 26 bls.; Darmstadt, Scott & Courtney, 403 bls.; Castle & Overton, 625 bls.; Van Oppen & Co., 589 bls.; J. W. Elwell, 3 bls.; Guaranty Trust Co., 70 bls.; Banca Commerciale Italiana Trust Co., 392 bls.; Fidelity Trust Co., 35 bls; International Purchasing Co., 29 bls.; Chase National Bank, 76 bls.; A. W. Fenton, Inc., 37 bls.; Paul Berlowitz, 123 bls.; Chemical Bank & Trust Co., 73 bls.; International Trust Co., 56 bls.; E. J. Keller Co., 69 bls.; Order, 575 bls.

Rags—Darmstadt, Scott & Courtney, 377 bls.; Amtorg Trading Corp., 5,016 bls.; Robert Bishop Mfg. Co., 45 bls.; S. Godfrey, 29 bls.; Victor Galaup, Inc., 3 bls.; Paul Berlowitz, 298 bls.; William Steck & Co., 233 bls.; R. Canovai & Sons, 3 bls.; Katzenstein & Keene, 61 bls.; E. Butterworth & Co., 67 bls.; Ernst Mayer, 340 bls.; American Wool Stock Co., 245 bls.; Castle & Overton, 125 bls.; P. Garvan, Inc., 104 bls.; M. W. Levinson, 63 bls.; J. Reiss & Co., 58 bls.; Ansonia Shipping Corp., 14 bls.; Robert Blank, 51 bls.; J. Cohen & Son, 43 bls.; Arkus, Inc., 205 bls.; E. J. Keller Co., 840 bls.; G. J. Schuster, 24 bls.; Banca Commerciale Italiana Trust Co., 202 bls.; Philadelphia National Bank, 141 bls.; Chase National Bank, 27 bls.; Liberty National Bank, 207 bls.; Chemical Bank & Trust Co., 466 bls.; Irving Trust Co., 204 bls.; Bank of New York & Trust Co., 45 bls.; National City Bank, 113 bls.; Guaranty Trust Co., 60 bls.; International Germanic Trust Co., 424 bls.; First National Bank of Boston, 153 bls.; Fidelity Trust Co., 190 bls.; Bankers Trust Co., 17 bls.; Equitable Eastern Banking Corp., 65 bls.; New York Trust Co., 41 bls.; Second National Bank of Boston, 11 bls.; Barrett Co., 235 bls.; A. W. Fenton, Inc., 364 bls.; C. R. Spence & Co, 215 bls.; Arnold Bernstein Steamship Co., 212 bls.; Van Oppen & Co., 37 bls.; Brown Bros. & Co., 486 bls.; Baring Bros. & Co., 206 bls.; American Express Co., 80 bls.; Order, 532 bls.

Miscellaneous Paper Stock—Castle & Overton, 225 bls.; Munson Steamship Co., 69 bls.; Irving Trust Co., 48 bls.; E. Butterworth & Co., 311 bls.; R. M. Gray, Inc., 314 bls.; George W. Millar & Co., 158 bls.; Barring Bros. & Co., 132 bls.; Anglo-South American Trust Co., 444 bls.; Brown Bros. & Co., 174 bls.; Milton Snedeker Corp., 182 bls.; Kidder Peabody Acceptance Corp., 42 bls.; J. Cohen & Son, 35 bls.; Darmstadt, Scott & Courtney, 40 bls.; First National Bank of Boston, 60 bls.; New York Trust Co., 47 bls.; E. J. Keller Co., 315 bls.; Order, 202 bls.

Paper

Imports of paper into the United States in April showed a slight decrease in value as compared with the preceding month, but were larger than in the corresponding month last year, according to official statistics compiled and issued by the U. S. Department of Commerce in Washington. April imports reached a total value of $12,385,754, contrasted with importations of a value of $12,410,732 in March of this year, and $12,128,812 in April, 1929. Imports during the first four months of the current year were valued at $48,514,247, against $49,915,361 in the similar period of last year.

Paper imports in June were of fairly large volume, judging from receipts through the port of New York. Arrivals of paper of all kinds at that port last month, these data being taken from manifests of steamers reaching New York during the month and therefore unofficial, were as follows:

Printing—Perkins-Goodwin Co., 1,190 reels from Hamburg and 145 reels Bremen; Johanneson, Wales & Sparre, 10 reels from Stockholm; Lunham Reeve, 332 reels from Kotka; H. Reeve Angel & Co., 557 reels from Kotka; Bank of Montreal, 10,025 rolls from Corner Brook; W. H. Bell, 9,188 rolls from Liverpool, N. S.; International Madison Bank, 20 cs. from Hamburg; Keuffel & Esser Co., 75 rolls from Hamburg and 39 cs. Rotterdam; Fidelity Trust Co., 287 reels from Hamburg; P. C. Zuhlke, 103 cs. from Antwerp; E. Dietzgen & Co., 197 cs. from Rotterdam and 223 cs. Hamburg; Dingelstedt & Co., 16 cs. from Bremen; C. Steiner, 5 cs. from Bremen and 10 cs. Marseilles; Hoboken Trust Co., 4 cs. from Hamburg; Guaranty Trust Co., 66 bls. from Hamburg; M. Fairbanks Co., 46 cs. from Genoa; Steiner Paper Corp., 54 cs. from Rotterdam; Order, 269 bls. and 924 rolls from Oslo, 1,717 rolls Kotka, 986 reels Bremen 25 cs. Hamburg and 33 cs. Rotterdam.

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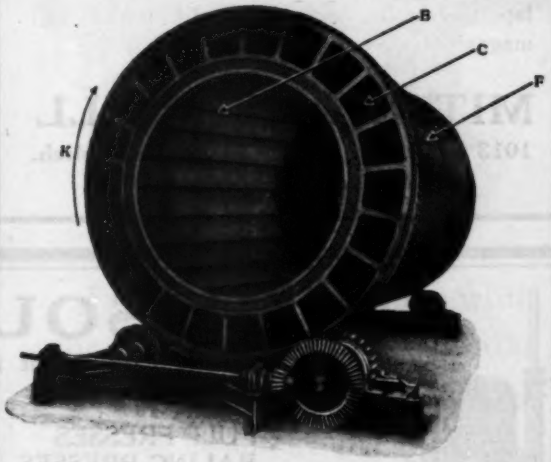
DRYING SYSTEMS
(PATENTS GRANTED AND PENDING IN ALL COUNTRIES)

The PEHRSON
ROTARY DRYER

for uniform drying of wood chips and bark



NO other drying method can compare with that of the Pehrson . . . from the standpoint of uniform distribution of gases, complete surface-exposure to gases, high thermal conductivity or shrinkage in drying.

The Pehrson has greater capacity than any other dryer of comparable size.

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FIDALGO DRYER—for shredded pulp
DRYAD—Continuous dryer for board
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MEYERS-MESCO STOCK CONSISTENCY REGULATOR—for all kinds of stock
BEADLE METERING DEVICE—for metering any number of stocks
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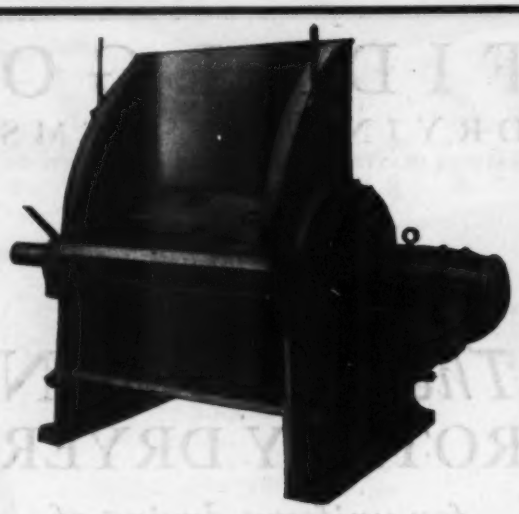

M&M Shredders are designed and built to handle practically every kind of paper stock—including kraft, sheet sulphite, machine broke, lap and roll stock, and old books and magazines.

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Would your Company like to have it produce similar earnings in your mill?

See PAPER AND PULP MILL CATALOGUE page 306 for our catalogue and WRITE FOR INFORMATION.

APMEW Pulp Screens
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" Fine Screens
" Continuous Filters, Pulp Washers, Thickeners and Save-Alls.
" Rotary Sulphur Burners
" Centrifugal Stock Pumps

American Paper Machinery and Engineering Works

GLENS FALLS, NEW YORK

Canadian Manufacturer—Paper Mill Equipment, Ltd., 413 Drummond Building, Montreal, Que.
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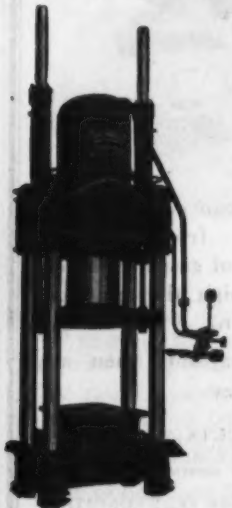

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Hydraulic Equipment for Pulp and Paper Mills, Wall Board Plants, Etc.

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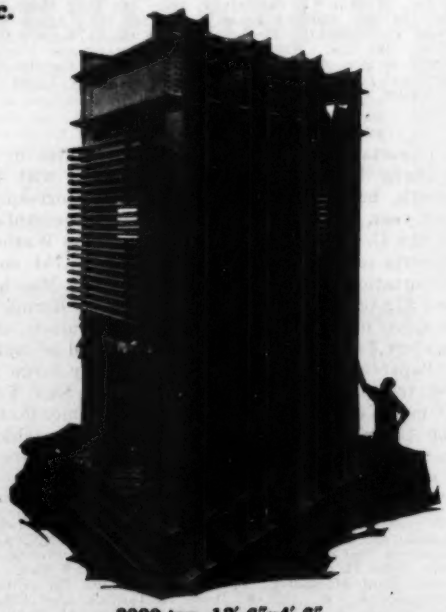
Southwark Hydraulic Equipment is the choice of the largest and best known Pulp and Paper Mills throughout the country. They find Southwark products give the most efficient service under exacting conditions. Write for Bulletin No. 14.



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AKRON 100 E. SOUTH ST.

Wrapping—Robert Wilson Paper Corp., 45 cs. from Glasgow; Borregaard Co., 791 reels and 98 bls. from Gothenburg; H. Reeve Angel Co., 32 rolls from Gothenburg; F. L. Kraemer & Co., 147 bls. from Gothenburg; Wilkinson Bros. & Co., 37 cs. from Gothenburg; Thomas Barrett & Son, 80 bls. from Gothenburg; Blauvelt Wiley Paper Mfg. Co., 13 bls. from Gothenburg; H. Harrison, 48 cs. from Hamburg; Sylvania Industrial Corp., 11 cs. from Antwerp; Yardley & Co., 2 cs. from Southampton and 12 cs. London; C. Steiner, 159 bls. from Rotterdam; A. M. Schmidt, 10 cs. from Bremen; Standard Products Corp., 19 rolls from Antwerp; Order, 13 bls. from Hamburg and 6 cs. Antwerp.

Cigarette—American Tobacco Co., 1,602 cs. from Bordeaux; De-Mauduit Paper Corp., 758 cs. from Havre and 1,049 cs. St. Nazaire; H. H. Strauss, 100 cs. from Havre; Standard Products Corp., 603 cs. from Havre; British-American Tobacco Co., 14 cs. from Southampton; Ligget & Myers Tobacco Co., 35 cs. from Bordeaux and 51 cs. Liverpool; M. Spiegel & Sons, 16 bls. from Genoa; Gluckman & Strauch, 4 cs. from Bordeaux; P. J. Schweitzer, Inc., 419 cs. from Marseilles; Order 15 cs. from Genoa and 3 cs. Valencia.

Writing—C. A. Redden, 6 cs. from Havre; Gimbel Bros., 4 cs. from Havre; Guibont Freres & Co., 29 cs. from Southampton; John Wanamaker, 4 cs. from Southampton.

Filter—H. Reeve Angel & Co., 62 cs. from Southampton and 38 cs. London; A. Giese & Son, 14 cs. from Hamburg; E. Fougera & Co., 153 cs. from Bordeaux; J. Manheimer, 120 bls. from Southampton; C. Sleicher & Scholl Co., 7 bls. from Hamburg; C. G. Euler, 30 bls. from Bordeaux.

Tissue—F. B. Vandegrift & Co., 5 cs. from Liverpool; D. C. Andrews & Co., 11 cs. from Liverpool; F. C. Strype, 105 cs. from Helsingfors; Schenkers, Inc., 54 cs. from Hamburg.

Hanging—F. J. Emmerich & Co., 10 bls. from Hamburg and 6 bls. Liverpool; C. A. Haynes & Co., 61 bls. from London and 4 cs. Liverpool; W. H. S. Lloyd & Co., 2 bls. from London; F. G. Prager & Co., 56 bls. from Antwerp; F. L. Kraemer & Co., 19 cs. from Southampton; J. E. Bernard & Co., 7 bls. from Southampton, 16 bls. Liverpool and 3 cs. Antwerp; R. F. Downing & Co., 7 cs. from Southampton; Irving Trust Co., 27 cs. from Hamburg; Guaranty Trust Co., 32 cs. from Hamburg; Chase National Bank, 2 bls. from Bremen; Order, 10 bls. from Hamburg and 3 bls. London.

Photo—J. H. Shroeder Banking Corp., 33 cs. from Bremen; Globe Shipping Co., 328 bls. from Bremen; Gevaert Co. of America, 202 cs. from Antwerp; J. J. Gavin & Co., 3 cs. from Southampton; Medo Photo Supply Co., 4 cs. from London.

Board—Coty, Inc., 118 cs. from Havre; Lagerloef Trading Co., 824 bls. and 232 reels from Kotka and 46 reels Helsingfors; Summit Paper Co., 11 cs. and 10 rolls from Rotterdam; Bank of the United States, 3 cs. from Havre; Chatham & Phenix National Bank, 97 bls. from Gothenburg; C. Jacques, 82 bls. from Barcelona; Order, 30 bls. from Hamburg.

Miscellaneous—S. Gilbert, 74 cs. from Bremen; Hurley-Johnson Corp., 24 bls. from Liverpool; W. J. Byrnes & Co., 2 cs. from Havre; Whiting-Patterson Co., 9 cs. from Southampton; Hensel, Bruckmann & Lorbacher, 54 cs. from Bremen; Cheramy, Inc., 3 cs. from Southampton, Keller-Dorian Paper Co., 74 cs. from Havre; Causon & Montgolfer, 3 cs. from Havre; Central Hanover Bank & Trust Co., 22 bls. from Oslo and 35 cs. Hamburg; E. Dalber, 4 cs. from Antwerp; Pacific National Bank, 40 cs. from Marseilles and 2 cs. Hamburg; F. L. Kraemer & Co., 41 cs. from Bremen, 10 bls. Southampton and 21 cs. Havre; J. Beckhardt & Co., 11 cs. from Havre and 28 cs. Bremen; P. H. Petry & Co., 15 cs. from Havre; P. Puttmann, 2 cs. from Antwerp and 27 cs. Havre; Borden & Riley Paper Co., 11 cs. from Antwerp; W. A. Foster, 13 cs. from London and 18 cs. Liverpool; F. B. Vandegrift & Co., 5 cs. from Hamburg; Globe Shipping Co., 303 cs. from Bremen; Atlantic Forwarding Co., 9 cs. from Hamburg; American Express Co., 103 cs. from Havre and 6 cs. Hamburg; International Forwarding Co., 32 cs. from Antwerp, 6 cs. Yokohama, 45 cs. Rotterdam and 7 cs. Havre; J. Henschel & Co., 11 cs. from Hamburg; G. B. Siebold, 15 cs. from Hong Kong; J. J. Shore & Co., 43 cs. from Hamburg; Quality Art Novelty Co., 4 cs. from Hamburg; Japan Paper Co., 31 cs. from Yokohama, 4 cs. Havre and 36 cs. Genoa; F. Murray Hill, Inc., 8 cs. from Bremen; F. C. Strype, 4 cs. from Rotterdam; International Acceptance Bank, 20 cs. from Rotterdam; Tamm & Co., 2 cs. from Rotterdam; Miller & Wright Paper Co., 2 cs. from Rotterdam; W. L. Haas, 11 cs. from Rotterdam; Cohn & Lewis, 20 cs. from Southampton; Kupfer Bros. Co., 30 cs. from Bremen; B. F. Drakenfeld & Co., 78 cs. from Liverpool; Thomas & Pierson, 2 cs. from Southampton; Whitfield Paper Works, 25 cs. from Kobe; A. Flinn & Co., 3 cs. from Havre; Tice & Lynch, 2 cs. from Havre; D. F. Young, 13 cs. from Bremen; E. Dietzgen & Co., 13 cs. from Hamburg; E. Henningson, 6 cs. from Bremen.

Atmospheric Pollution and Its Effect on Paper

A survey of the literature on atmospheric pollution has been completed by the Paper Section of the U. S. Bureau of Standards. No new ideas have been brought to light, but the importance of a knowledge of smoke and fume effects has been intensified. This study very sharply emphasizes these facts: atmospheric sulphur dioxide, resulting from the combustion of fuels, is ultimately changed to sulphuric acid, unquestionably a very destructive agent. Deteriorative action of this sulphuric acid upon building-stone, metals and vegetation is strongly emphasized, and a like action on papers is to be expected.

In the above mentioned study, statistics from fifteen American and European cities were compared. These showed air-pollutions ranging from 0.20 to 3.00 parts of atmospheric sulphur dioxide per million parts of air, and an annual precipitation (same as rainfall) of sulphuric acid averaging from 11 to 190 tons per square mile.

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THE LAST WORD IN SCREEN PERFECTION

End your screen troubles with the well-known Leith Walk Rotary Screen; open and accessible for cleaning; low in maintenance cost; requires but 2½ H.P. to operate and screens to perfection. Sound theory backed up by advanced engineering and quality workmanship make this screen a lasting investment in trouble-proof satisfaction. See one operate and be convinced.

PAPER-MAKING MACHINERY ESTABLISHED 1826 PITTSFIELD, MASS.

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BUILDERS OF HIGH-GRADE MACHINERY FOR PAPER MILLS

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CANVAS DRYER FELTS

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Fine Faced "English Woven" Felts for Fine Papers in Two, Three, Four, Five and Six Ply 60 Inches to 288 Inches in Width.

ABSOLUTELY NO FELT MARKS IN PAPER

TRIUNE Three Ply Felts for extra long service and large production

THE DRAPER FELT

Unexcelled for strength, openness, resiliency, and general running qualities. Made to meet the most exacting conditions on all types of machines and all kinds of papers. Only one grade and that the highest.

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Foreign Trade Opportunities

The following foreign trade opportunities are issued by the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce. Those interested are requested to communicate with the Bureau at its offices in Washington or New York or its branch offices in other cities, in every case mentioning the number of the inquiries referred to.

No. 45542—Paper bags, kraft wrapping paper, and manila paper. San Juan, P. R. Agency desired.

No. 45587—Fiber sheets, resistant, oil and gasoline, for gaskets. Vienna, Austria. Purchase and agency desired.

No. 45538—Roofing paper. Hamburg, Germany. Agency desired.

No. 45686—Wallboard-making machinery and equipment. Prague, Czechoslovakia. Purchase desired.

No. 45688—Base paper for use with gelatin duplicators. Liverpool, England. Purchase desired.

No. 45757—Cellulose wadding. Manchester, England. Purchase desired.

No. 45687—Cigarette and packing papers. Surabaya, Java. Purchase desired.

No. 45752—Kraft paper, four carloads. Regina, Canada. Purchase desired.

No. 45733—Paper cup manufacturing machinery. Mexico City, Mexico. Purchase desired.

No. 45754—Tissue paper for fruit wrapping. Christchurch, New Zealand. Purchase and agency desired.

No. 45753—Wallboard. Vancouver, Canada. Agency desired.

No. 45689—Wood pulp, sulphite. Kagoshima, Japan. Purchase desired.

No. 45824—Casein. Hamburg, Germany. Agency desired.

No. 45816—Multigraph paper. Johannesburg, South Africa. Agency desired.

No. 45817—Paper carton manufacturing machinery, and paper for the manufacture of containers for ice cream, milk, etc. Auckland, New Zealand. Purchase desired.

No. 45800—Wood pulp, high grade. Osaka, Japan. Purchase desired.

No. 45961—Chemicals for paper manufacturing. Turin, Italy. Purchase desired.

No. 45942—Paper bags. Guayaquil, Ecuador. Agency desired.

No. 45938—Glassine paper, colored. Soa Paulo, Brazil. Agency desired.

No. 45950—Wood pulp, chemical, bleached and unbleached, first and second grades. Buenos Aires, Argentina. Agency desired.

Tolhurst Is Now Independent Corporation

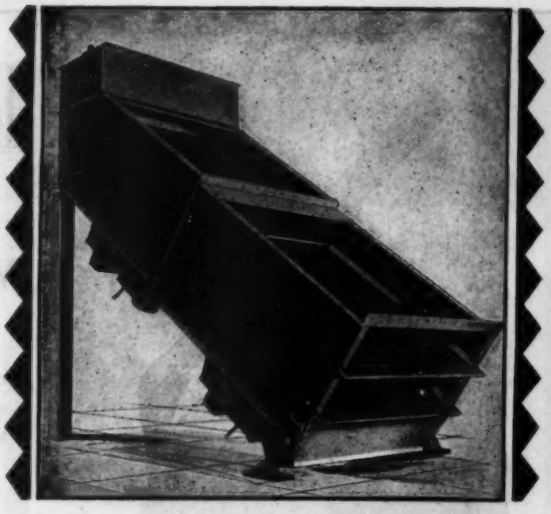
With the merger of the General Laundry Machinery Company and the American Laundry Machinery Company, the Tolhurst Machine Works, Inc., Troy, N. Y., which has been associated with the General Laundry Machinery Company, becomes an independent corporation.

The Tolhurst Machine Works, Inc., is prominently identified with the paper industry through its engineering development in connection with centrifugal separation for the making of cleaner paper. Its position in the industry remains unchanged, except in so far as the move greatly enhances the engineering and productive resources of the Tolhurst Machine Works, Inc.

Blaw-Knox International Corporation

Blaw-Knox International Corporation is the new name for the Export Organization of the Blaw-Knox Company, which was formerly known as Milliken Brothers—Blaw-Knox Corporation, which in turn succeeded the original Milliken Brothers Mfg. Co.

This corporation handles all the products of the Blaw-Knox Co. in South America, the West Indies and other parts of the world where the Blaw-Knox Co. is not otherwise represented. There will be no change in the personnel of the company and the offices will remain as formerly, in the Canadian-Pacific Building, New York City.



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Small floor space required!
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Fully adjustable screening angle and vibration!
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No destructive shaking of supports or buildings!
No belts or pulleys!
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These are the features which make the Wood Chip Hum-mer a profitable investment for pulp and paper mills!

Write for Catalogue 54-P

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IMPROVED MICROMETER ROLL CALIPER

An indispensable instrument to the mill equipped to do its own regrinding and equally useful in every mill in keeping an accurate check on the condition of the calender and press rolls.

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EASILY ADJUSTED
EXTREMELY ACCURATE

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WILMINGTON, DELAWARE

Lindsay Spiral Weave Fourdrinier Wires

(Patented Oct. 1927)

Represent the latest idea in paper machine wire cloth.

They prevent grooving of Suction Boxes, scoring and filling up of seams. This overcomes the necessity of planing the suction box covers and adds to the life and tonnage of the wires.

Lindsay Wire Weaving Company

Collinwood Station CLEVELAND, OHIO

Relation of Sizing Materials to Stability of Paper

The Paper Section of the National Bureau of Standards releases for publication the results of recent studies of the bureau relating to the effect of sizing materials on stability of paper. Reference was made in the April issue of THE PAPER INDUSTRY, p. 105, to an investigation of the effect of starch on stability of paper. Additional results have been obtained in the study of glue- and starch-sized papers prepared recently in the Bureau paper mill from highly-purified wood fibers. The papers were tub-sized with these materials, that is, sized by passing them through solutions of them. The sized papers were tested for alpha cellulose content and copper number, and the effect of heating on these properties determined.

Four different tub-size runs—glue and alum, starch, and starch and alum—were made on each of three different base papers. These basic papers were: a waterleaf, and two engine-sized papers sized respectively with ½, and 1 per cent rosin. Controls of the unsized papers corresponding to each of the tub-sized runs were tested individually, including the stability test. These control samples were taken just before and after each run so as to be representative of that particular run. This plan of testing provided four individual fold and tear retention values on each of the three basic papers, and made possible some conclusion as to the reproducibility to be expected in these stability tests. A summary of these values is tabulated below.

Basic Paper	Average per cent retention of fold	Average per cent variation from the average	Average per cent retention of tear	Average per cent variation from the average
Waterleaf	99	9	91	2
Engine-sized ½ per cent rosin	87	6	90	1.5
Engine-sized 1 per cent rosin	84	7	88	2

While there are comparatively wide variations in individual fold retention figures, the variations are no greater than commonly experienced in folding tests.

All the papers were found to be very stable toward the heat test, exhibiting very little change in strength. In all cases upwards of 80 per cent of the initial folding endurance was retained after heating. Papers tub-sized with glue or starch containing alum were found to be no less stable than corresponding papers containing no alum in the size baths.

The stability as determined by decrease in alpha cellulose and increase in copper number on heating is improved somewhat on tub-sizing, evidently through the protective effect of the surface coating of glue. The presence of alum in the tub-sizing bath has no deleterious effect upon the stability as measured by changes in alpha cellulose and copper number. This agrees with previous conclusions as to the relative harmlessness of external acidity, that is, acidity added by the tub-sizing. The excellent stability of all these papers is further indicated by the fact that in all cases the decrease in alpha cellulose on heating is less than 1 per cent, and the increase in copper number less than 0.2. These results further confirm those obtained by the bureau in tests of commercial papers.

H. K. Ferguson Acquires Spengler Organization

Harold K. Ferguson, president of The H. K. Ferguson Company, international engineers and builders at Cleveland, recently announced that his company has acquired the business, assets and good will of Warren D. Spengler, Inc., consulting power plant engineers of Cleveland.

The Spengler organization was established eleven years ago by Warren D. Spengler, and during its development his two brothers, Ralph A. and Harold H. have become associated with him in addition to other members of the organization.

The entire personnel of Warren D. Spengler, Inc., will join The H. K. Ferguson Company, maintaining under new leadership the same activities as in the past, plus the complete construction and equipment service which the Ferguson Company maintains.

Do you know how to SHIP PAPER?

WITHOUT LOSS!
at minimum cost

Even though everyone is satisfied—It does not follow that you cannot still further reduce shipping losses or that it is impossible to ship even more economically. No matter what type of containers or skids you use—Signode can increase your factor of safety and also save you money.

Many Leading Paper Mills use Signode to great advantage. You, too, can profit. Ask for 10 minute demonstration or write for Paper Bulletin No. 10. There is not the slightest obligation.

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We also furnish round wire tensional reinforcements, all forms of nailed-on strapping, automatic wire tying machines, pail clasps, clutch nails, tag fasteners, etc. Write for general catalog.

SIGNODE
The Sealed Tensional Strapping

Lawrence "Vortex" Sureflo Pumps

for pulp and thick stock

For modern and dependable paper stock pumps engineers are today specifying Lawrence "Vortex" SUREFLO Pumps, because the SUREFLO principle has proven in actual service its ability to handle pulp and thick stock of high consistency, coarse refuse, stringy material, etc. with continuous ease and unusual efficiency.

WHERE DEPENDABILITY IS THE FIRST CONSIDERATION—you will find the Lawrence "Vortex" SUREFLO Pumps.

The SUREFLO pump is made in the Horizontal Shaft type as well as the Vertical.

You will find complete description and valuable data in bulletin D-35.

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"TENTACULAR" Transmission Belt

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